JUN 10

Medical Times

A Monthly Journal of Medicine, Surgery and the Collateral Sciences

Published by THE MEDICAL TIMES COMPANY at 95 Nassau Street

VOL. XLVIII., No. 6 NEW YORK, JUNE, 1920 Fifteen Cents a Copy One Dollar a Year

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General Scientific

STONE IN THE BLADDER.*

HENRY H. MORTON, M.D.,

CLINICAL PROFESSOR OF GENITO-URINARY DISEASES IN THE LONG ISLAND COLLEGE HOSPITAL; GENITO-URINARY SURGEON TO LONG ISLAND COLLEGE AND KINGS COUNTY HOSPITALS AND THE POLHEMUS MEMORIAL CLINIC, ETC.

Brooklyn.

Our first case is a child 4 years old who has a stone in the bladder. The chief complaint of this child is pain on urination and frequency of urination.

The history follows: The child had measles when a year and a half old, and the present illness began just after that attack. The symptoms have gradually increased in severity, the pain has become more severe, particularly during the past four months, and the act of urination is so painful that the child becomes rigid and stiffens out and shrieks with pain when he passes his water. The tenesmus and straining are so marked that the rectum prolapes with the act of voiding. The urine is passed every half hour or oftener. It is very turbid from pus, but no occult blood has ever been noticed.

The urinary examination shows the presence of phosphatic crystals, many red blood cells, many white blood cels, and numbers of colon bacilli.

Now, you may ask, How do we make the diagnosis in this case—from the history or from the urinary examination? These are merely suggestive. The diagnosis is made from the *x*-ray picture. We notice a large stone lying above the brim of the pelvis, about the size of a robin's egg. Of course, in a child 4 years of age the question of cystoscopy cannot be considered, for the parts are too small to introduce the cystoscope, and the diagnosis of stone in the bladder in a child must be made by the *x*-ray, which in children is the method of diagnosis par excellence.

You may say it is possible that the shadow may be caused by something else, so, in order to check that up, I will have recourse to other methods of examination. With one finger in the rectum, I palpate with the other hand over the abdomen, and the bimanual touch discloses a hard mass in the bladder. To still further confirm the diagnosis, I introduce a small sized stone-searcher through the urethra and my instrument comes in contact with a hard, round, smooth body lying in the bladder and giving a distinct click as the instrument touches it.

Having made the diagnosis, we next proceed to the operation of suprapubic lithotomy. An incision is made upwards from the pubis, cutting through the skin, fat and muscle, being careful to push the peritoneal fold up out of the way so as to avoid damaging the intestines. The bladder is thus exposed. I grasp the upper portion with a Kochar forceps, put in two silk retraction sutures and open the bladder with a scalpel between them. On exploring the bladder I find the stone lying freely movable in its cavity. I grasp it with the lithotomy forceps, withdraw it, and you see the stone of the same size as shown in the *x*-ray picture. I now suture the bladder, but leave a space at the top, through which I introduce a Pezzer catheter for drainage. In order to prevent leakage, I make a purse-string suture around the catheter, place a gauze drain in the space of Retzius and close the muscles, fascia and skin with sutures. It is always a question in these cases of stone in the bladder as to whether we should drain with a retained catheter in the urethra or a drainage tube in the bladder. In this case I feel that it is safer, on account of the long-standing cystitis, to make sure of my drainage by leaving a tube in the bladder to carry out the urine. This will be removed in four days and I shall expect the small wound to heal by granulation.

Let us now take up the consideration of stone in the bladder in general.

There are three varieties of stone in the bladder, depending on the constitution or make-up of the stone. They are called uratic, oxalic and phosphatic stones. Uratic and oxalic stones are constitutional in origin; that is, they are due to some disorder of metabolism of the body. Phosphatic stones are induced by purely local causes, such as residual urine, from stricture or enlarged prostate.

A stone is never formed of one element, but consists of two varieties of crystals. Every stone must have a nucleus to form on. The nucleus may be a foreign body which has been introduced in the bladder accidentally

*A clinical lecture delivered in the Long Island College Hospital, Brooklyn.

or a bit of necrotic tissue sloughed from the wall. In stones due to a constitutional cause the mechanism is this: a few crystals of uric acid become agglomerated in the pelvis of the kidney, pass through the ureter, drop into the bladder and act as a nucleus. Here they become covered with concentric layers of phosphates from the decomposition of the urinary salts, so that the stone usually has a uric acid nucleus and a deposit of phosphates in concentric layers.

The diet or constitutional habit of an individual is responsible for the formation of many stones. They occur very frequently in gouty people. Gout and stone in the bladder or stone in the kidney, are an old clinical combination that go hand in hand, for the reason that gout predisposes to the formation of uric acid crystals.

Phosphatic stones are found in the presence of residual urine and severe cystitis. The cystitis causes the residual urine to decompose and phosphates are deposited, or anything which happens to be lying in the bladder, and in this way a calculus is formed.

There are four cardinal symptoms which are present in practically every case of stone in the bladder. They are:

1. Pain.
2. Increased frequency of urination.
3. Blood in the urine.
4. Sudden stoppage of the urine in full stream.

The pain is rather characteristic. It is felt at the end of the penis and is increased by riding in a jolting wagon or by movements. It occurs, however, more particularly at the end of urination when the bladder is emptied and the stone is crowded down upon he neck of the bladder, giving rise to intense pain. Pain is not experienced when the stone lies behind an enlarged prostate, in which case the stone is nicely pocketed there and not forced down against the neck of the bladder. Under these conditions it may lie in the post-prostatic pouch for a number of years without causing any discomfort.

Increased frequency of urination is always present with stone, depending partly on the stone rolling about, but more particularly on the cystitis which always accompanies stone. It is safe to say that stone in the bladder cannot exist without cystitis being present.

Blood is a symptom which is not so prominent in these cases, as was evidenced in the case of this child. It is true that blood was found in this case on microscopical examination, but it was not visible to the naked eye in the urine.

Sudden stoppage of the flow of urine generally exists in cases of stone in the bladder. This is brought about by the stone rolling upon the outlet of the bladder, shutting off the stream, and then rolling away from the outlet again. It is not a pathognomonic symptom, because there is a sudden stoppage of the flow of urine in other conditions, such as tuberculous ulcers of the bladder.

As already stated, cystitis is always present in this condition; and examination of the urine always shows the presenec of pus and frequently red blood cells in large quantities, and very often crystals.

The diagnosis of stone in the bladder is very easy to make at the present time. In the days before the cystoscope and the *x*-ray, the genito-urinary surgeon had but one instrument, the stone-searcher, with which to explore the bladder, and in the use of this he became very proficient. The surgeons of a former generation would pass the stone-searcher into the bladder and they could tell the number of stones present and their size and consistency, and when the bladder was opened, in nine cases out of ten their findings were demonstrated to be correct. Today the stone-searcher still has a place in the armamentarium, but its chief use would be in the hands of the intelligent general practitioner who has no cystoscope or *x*-ray. If he has a case where he suspects that a stone is present and he passes a stone-searcher in the bladder gently and feels about carefully, he can, very often, touch the stone, if it is a large one, but in inexperienced hands it is very misleading because there are many stones which lie behind an enlarged prostate and they elude contact with the stone-searcher.

In adults we place our chief dependence for diagnosing the presence of stone in the bladder upon the cystoscope. The stone lies so prominently in the cystoscopic field that it is almost impossible to miss it, even in the hand of a man who has had but little cystoscopic experience.

The cystoscope has made it almost unnecessary to have recourse to the *x*-ray in most cases. The radiograph is convenient for confirming the cystoscopic findings, but, ordinarily, we do not find it necessary to resort to its use in adults. Of coufse, the great field of usefulness for the *x*-ray in cases of stone in the bladder is in children, as in the present instance. It would have been impossible to cystoscope this child on account of the smallness of the parts. We could touch the stone with the stone-searcher, but that, of course, woud require an anesthetic, where as with the *x*-ray it was simply necessary to place the child on the table and the diagnosis was made without any trouble.

Having discussed the diagnosis in these cases, let us pass on to a consideration of the question of treatment. We may first consider the preventive treatment. In the presence of constitutional stones, or those due to uric acid, it is necessary for the patient to lead a strictly correct life as far as over-eating and drinking are concerned. A man with a gouty diathesis and a tendency to the formation of stone in the bladder should eat very sparingly of meat. I do not believe he should eliminate it entirely from his diet, but should confine himself to the consumption of small quantities. He should take exercise in the open air, and should (and this above all things) drink large quantities of pure water. The water renders the uric acid more soluble so that it is passed by the patient in a soluble condition and does not form into crystals; and in that way agglutination of the crystals in the pelvis of the kidney is avoided.

Local, or phosphatic, stones are always due to retention of residual urine. In this class of cases we drain the bladder to rid it of the residual urine. When the bladder is drained by cutting a stricture or removing an hypertrophied prostate, the tendency to the formation of stones is averted, but as long as an hypertrophied prostate is present with cystitis, a stone is very apt to form.

When we come to the question of operative treatment of stone in the bladder we have a choice of two operations, namely, litholapaxy and lithotomy, either perineal or suprapubic.

Litholapaxy, as you know, consists in introducing an instrument (known as the lithotrite) into the bladder, crushing the stone and then washing out the fragments. The operation of merely crushing the stone is called lithotrity, but the combined operation of crushing the stone and washing out the fragments from the bladder at the same time is called litholapaxy.

One of the earliest surgeons to perform the operation of crushing stones was Civiale, of Paris, who, in 1824, devised an instrument by which stones could be crushed in the bladder, but at that time the great difficulty was that they were unable to get rid of the fragments, and while the stone could be crushed, the fragments lay in

the bladder, the patient voided what he could of the fragments, but still some remained behind, the result being that other stones formed on these as nuclei and it was again necessary to operate.

Litholapaxy did not come into use until Bigelow, of Boston (1878-1883), devised the instrument which we use at the present time. He was a mechanical genius, as well as a great surgeon, and the instrument which he devised forty years ago was so perfect that it has never been improved upon, and, although many men have endeavored to improve on Bigelow's instrument, it remains today exactly as it was turned out from the hands of his instrument-maker.

Bigelow not only devised an instrument for crushing stones, but also invented an instrument for removing the fragments, so that when the stone is crushed, the fragments can be washed out and none are left behind.

Litholapaxy is the operation of choice in all the cases to which it is suited on account of the short period of convalescence, the patient being out of the hospital in three or four days, or ,at most, a week.

There are certain requisites, however, which must be observed in the use of the lithotrite. The stones must be small of size and not too hard in consistency. In the case of large stones the number of fragments is so great and the crushing which must be done so extensive that the operation is too protracted. The stone must be easy of access. If it lies in a saccular diverticulum in the bladder, it cannot be gotten at, or if it lies in a pouch behind an hypertrophied prostate, it cannot be grasped with the lithotrite.

There are certain contraindication to litholapaxy which are very distinct. In chidren of small size the stone cannot be crushed because the instrument cannot be passed through the urethra.

In the presence of a tight stricture it is better to cut the stricture and remove the stone with forceps.

In the presence of a severe cystitis of long standing it is better to open the bladder and give the patient the benefit of prolonged bladder drainage in order to cure the cystitis.

Hypertrophied prostate is generally a contraindication to crushing a stone because, as already stated, we are not able to grasp the stone, and in the face of this condition a cutting operation is the better one to do.

In the presence of nephritis and pyelo-nephritis the crushing of a stone carries with it more danger to the patient than does an open operation.

These, therefore, are the contraindications to the operation of litholapaxy, but when the conditions are favorable, litholapaxy is the ideal way to rid the patient of this troublesome condition.

The earliest form of lithotomy was the perineal lithotomy, in which the stone was crushed by cutting through the perineum. The operation of lithotomy is so old that it dates back a couple of thousand years, and we know that Hippocrates in administering the oath to his pupils, made them promise not to cut for stone. This was left entirely in the hands of itinerant stone-cutters who made it a custom to travel about the counry and do nothing but operate on stones. From this it will be seen that the urologist and genito-urinary surgeon were recognized even in the time of Hippocrates. The clause in the Hippocratic oath relating to stone is as follows:

"With purity and holiness will I pass my life and practice my art. I will not cut a person who is suffering with stone, but will leave this to be done by those who are practitioners of such work."

The idea of this promise was that the man who was doing something all the time was able to do it very much better than the man who only did it occasionally, and some of these itinerant practitioners became quite skillful in operating for stones.

The operation which was done in those days was very different from the one which we do at the present time. It was known as "cutting on the gripe." The stone-cutter would introduce one finger into the rectum, grasp the stone and hold it with his thumb on the other side, pushing the stone into the perineum, and then when he had steadied the stone, would make a sweep with his knife, which was the shape of a crescent, through the perineum, cutting through all the structures down to the bladder, and with a pair of forceps he would remove the stone. Of course, the stones operated on in that way were necessarily very large ones, as otherwise they would not have been able to push them down and remove them in that manner. The mortality after such a procedure, needless to say, was very high, owing to a lack of knowledge of how to stop hemorrhage and because they knew nothing about asepsis.

The operation of perineal lithotomy became improved and the staff was introduced and the anatomy of the perineum was studied, so that the operation was brought to a fair degree of perfection, and the old surgeons in past generations were always delighted in describing the operation and performing it. It is interesting to read some of the old books on the subject, particularly the lectures of Sir Henry Thompson, who was very enthusiastic in his description of making the diagnosis of the condition and the method of operating for stone. It is interesting reading and worth while even at the present day.

Perineal lithotomy, however, like the stage coach and the flint lock gun, has now largely passed, but, at the same time, it has its place even now. As before stated, it is possible to do a perineal section sometimes and remove small stones in the presence of stricture or cases of inveterate cystitis or pyelitis or pyelonephritis.

Where a stone must be removed by cutting we have recourse today in general to the operation of suprapubic lithotomy, and in cases which cannot be crushed, the suprapubic lithotomy is the operation adapted to the greatest number of cases.

The operation of suprapubic lithotomy is not a recent discovery. It was first done by Pierre Franco in the year 1550. Franco was very successful in removing large stones by the suprapubic route, but his followers did not have the degree of success which he attained and their mortality rate was very high. They did not understand how to do the operation, they knew nothing about asepsis, or even about cleanliness, the peritoneum was often wounded, and the mortality was so high that the operation fell into disuse until 1880. It was then resurrected and since that time it has been the operation of choice, and because of the highly-perfected methods of asepsis, the death rate has been reduced, so that it is the method which is usually followed at the present time.

Now, there are some special indications for suprapubic lithotomy. We have to make use of it in cases of large stones, fixed stones, and in the presence of hypertrophied prostate. In these conditions it is superior to litholapaxy.

A large stone cannot be taken out through the perineum because it would result in too much traumatism to the parts in dragging it through the opening, whereas it is a simple thing to open the bladder suprapubically and remove the stone, as you saw in the case we operated on today.

In the case of fixed stones or incrustations in the bladder, or stones lying in a saccular diverticulum in

the bladder, it is not practicable to try to get them out through the perineum, and they cannot be crushed as they are out of reach.

To remove such stones we must open the bladder from above and remove the stone with the aid of the naked eye.

Cases of hypertrophied prostate are very apt to be complicated by stone in the bladder. The operation for the removal of hypertrophied prostate which is usually done is that of suprapubic prostatectomy, and it is a very simple matter to open the bladder and take the stone out before removing the prostate.

So we might say that the special indications for the suprapubic operation are: Large stones, fixed stones, incrustations, stones in sacculations and stones complicating hypertrophied prostate.

A word as to the mortality. Litholapaxy has the lowest death rate. In men under 50 the mortality rate is only 3¼ per cent. and even in old men it only reaches 6 per cent., whereas in the cutting operation, both suprapubic and perineal, the death rate in adults is from 14 to 50 years is 12 per cent., and in old men it runs to about 33⅓ per cent. In children the mortality rate of suprapubic lithotomy runs about 10 per cent. The reason for the high cortality rate in old men is unquestionably due to pyelitis and pyelonephritis which accompany stone in the bladder of long standing.

The conclusions to be drawn, then, are that the diagnosis should be made early and the stone removed while it is small and can be readily operated on by litholapaxy, which carries with it the lowest death rate of any of the operative procedures.

32 Schermerhorn Street.

IN THE ZONE OF THE ADVANCE WITH TEAM 39*

HOWARD LILIENTHAL, M.D.,
FORMERLY LT. COLONEL, M.C., A. E. F.
New York.

Margaret Dooley—Mrs. Dooley's daughter, the boys at the front affectionately called her—and Louise Gibbons, a veritable prize, whose only blemish was that she was not a Mt. Sinai graduate, were the nurses of Operating Team 39, of which I had the honor to be the chief.

Then there were Major Brickner and Captain W. A. Kellogg, the most congenial tent mates a Lieutenant-Colonel at Evacuation Hospital No. 8 ever had, and our two Corps boys, Shean and Zehetner, who had to stick close to a million pounds of instruments in a huge fiber bag or be shot at sunrise.

I wish there were space to tell just a tiny bit about our travels from Base Hospital 3 at Vauclaire to Tours, then to headquarters at Chaumont by the famous "Atta-boy Special," the American train whose only visible American feature was the colored porter; of our one-night stand at unfriendly Base Hospital 15, and thence by chance trains through to Maujouy le Petit where, beside the road, seven miles from historic Verdun and eight miles from the to be historic St. Mihiel, there nestled on the hillside the 1,500 bed hospital of tents and shacks for the severely wounded, which was to be our home during the crucial days of the war.

We passed there two months full of thrills and wonder and good hard work. The cannon were never silent, and though fortunately not too near, an occasional shell which had overshot the target of the Germans, the little village of Ancemont, about a mile and a half away, struck just near enough to us to make us think of what might happen if the gunners got careless.

Over our heads buzzed the planes; our own, often low enough to see the pilots; the enemy's, high above the clouds. And occasionally there were fights which looked like battles between hawks far up in the sky.

One morning a Spad, driven by a friend of one of the nurses, made astonishing gyrations close above our tents. The airman, a fine fellow, full of life and spirits, dropped a parachute note to the nurse and darted away to Hun land. He never came back.

At night the horizon glowed with grim flashes and signals. The road, so quiet by day, became alive with thousands of motor transport units of all kinds from the swift motorcycle to the lumbering heavy lorry carrying artillery to the future battle line.

When our work began in earnest, after the first big American attack in this region, the eighteen tables in the long operating shack were often all occupied at once, and operations were going on at two out of every three, the "next" patient being prepared on the third table. All was managed with the greatest efficiency and without the slightest confusion under the supervision of Major Shipley of Baltimore, an excellent medical officer and a skilful surgeon.

We worked in twelve hour shifts, alternating day and night with one hour in each twelve for cleaning up (!) and for refreshment. Miss Dooley acted as anesthetist, as wound assistant, as general helper, and sometimes as all at once. Miss Gibbons served two teams—as many as three and even four tables at a time—without a flurry, without a visible break in asepsis, and even without a criticism from an operator; surely a fine record.

At midnight in the dingy candle-lighted and chilly mess room the whole night shift, nurses and doctors together had supper; and during these jolly little parties all shop was forgotten in the enjoyment (?) of baked beans, stale bread and oleo, coffee which could not have "had anything on" the ersatz stuff of the Germans, and dessert of jam or flannel cakes and molasses. Sometimes there might have been meat as well. One advantage the nurses had on night duty was that there were fewer rats on the job during the daytime sleeping hours than after sundown.

But it wasn't all hard work. There were bright days when for a few hours everybody could go for a walk in the beautiful fields and the woods which were crowded with soldiers and their war stuff encamped for the day and hidden beneath the natural camouflage of the leafy cover from the eyes in the sky.

Interesting points could be visited too. There was Souilly, the headquarters of General Pershing, Verdun and the little shot-scarred villages of Senoncourt and Ancemont, where fruit, crackers, cheese and a rare bottle of wine could be had. There were dugouts and barbed wire and all the leavings of an old battleground.

Our Corps boys did excellent orderlies' work in the operating room and slept peacefully in the forest sheltered by their tiny pup tents in underground dens like tired wild animals. Harry Shean was a particularly valuable and resourceful persons, who could do a little of everything. He took wonderfully to the operating room work.

But the crowning experience of all was, of course, the surgery itself; fascinating because of its novelty, its huge proportions and the human sympathy which it called forth. No matter how tired and sleepy you were at four A. M. between operations, you became wide awake and alert when the arrival at your table of

*Also contributed to Mount Sinai Alumnae News.

a new case was announced, ready to give your best to help the most deserving, the most heroic and the gamest bunch of patients that ever came under the hands of a surgeon.

BONE CYSTS.

ROYALE H. FOWLER, M.D., F.A.C.S.,
Brooklyn, N. Y.

A. C., an Italian girl, age seven years, was admitted to the Greenpoint Hosiptal March 20, 1916. About one year ago the parents had noticed a swelling on the right index finger. This came on spontaneously without history of injury. It has been growing progressively larger during the last six months. There is no pain; the family history is negative and the past history unimportant.

Figure 1. Multiple bone cysts of the index finger. Note areas in the thumb.

Examination reveals a young girl in good health. Head, eyes, ears, nose negative. The teeth are in poor condition, the tongue coated, and the tonsils are swollen and reddened. The neck, lungs, heart, lymphatic system and abdomen are negative.

Extremities.—There is a hard, smooth swelling, the size of a hazel nut, attached to and springing from the outer aspect of the proximal phalanx of the index finger on the right hand, just distal to the metacarpophalangeal joint. It is not tender, and there is no restriction of the joint movement. The overlying skin is normal and shows no increase in surface temperature.

The accompanying illustration (see Figure 1) shows the lesion described very well. There are also other areas shown in the thumb and middle phalanx of the index finger.

Operation.—Incision over the swelling. The outer wall, made up of a thin, bony and cartalaginous membrane was removed. Unfortunately this specimen was lost, and no microscopic examination was made.

J. S., a young lady of 13, was referred to the German Hosiptal, October 30, 1910, complaining of a swelling above the wrist. Growth had been slow. There were no symptoms. The x-ray revealed the lesion in the lower end of the ulna (seen in Figure 2). Attention is directed to the bowing of the radius from pressure. The bone was cureted, as indicated by the dotted lines.

Comments.

So called bone cysts have been variously classified and the pathology is as complex as cystic disease of the breast. Lesions may be cortical or medullary, single or multiple, and have been further classified as true and false, benign and malignant.

The following classification based on the mode of origin is offered. Viewed from this standpoint these lesions may be 1, Traumatic; 2, Inflammatory; 3, Neoplastic.

Figure 2. Bone cyst lower end of the radius.

1. Traumatic. Pathogenesis may be found in subperiosteal hematoma with subsequent ossifying osteitis or following fracture with the formation of cysts in the callus.

2. Inflammatory. The underlying condition may be due to a local expression of a general constitutional disease as in arthritis deformans, osteitis deformans, or osteomalacia. Widely separated multiple lesions in different bones would suggest origin in the general constitutional diseases. Cysts may develop in local inflammatory lesions as in fibrous osteitis.

3. The neoplastic type may be seen in sarcoma, myxoma and enchondroma.

True bone cysts have been described by Bloodgood as those which show a definite relation to fibrous osteitis. These may have thin, dark-brown fluid contents containing blood and blood pigments. The cyst is single and has a bony shell. It may possess a definite connective tissue lining ½ MM. in thickness or it may not. Another form is described as a shell without fluid contents, but filled with a mass of connective tissue. A multilocular form, may be seen which may contain fluid or fibrous tissue. Still another type of unusually large size is described differing from others in the abrupt bone expansion and in the thickness of the bony shell. Bloodgood has found the bones of predelection to be the humerus, femur and tibia, and located usually near the epiphysis. True cysts are more apt to be cortical than medullary.

The minute pathology shows new connective tissue between the bony lamellae and has in common the microscopic picture of fibrous osteitis. Fibrous tissue replaces cancelleous tissue, produces absorption of the outer table and is covered by a shell of bone. The periosteum is usually intact except in pathological fracture. There is little or no new bone formation. Occasionally a few isolated acreas of cartilage are seen especially if adjacent to the epiphysis. Giant cells may be present in scattered areas, but not in sufficient numbers to characterize the lesions as giant cell sarcoma.

True cysts are found in youth. In Bloodgood's series 21 were under 10 years, 15 from 10-15 years and 11 from 15-20 years.

Diagnosis may be made at operation on 1, a bony shell, containing fluid or connective tissue. 2. Normal periosteum. 3. Presence of cartilage may be looked upon a further evidence of benignity. 4. The mere presence of giant cells is interesting but should not be interpreted as evidence per se of sarcoma. These outstanding features limit the operation to curetment.

Sixty-nine cases of true cysts have been collected by Bloodgood up to 1910. Multiple lesions in more than one bone have been found in four cases.

THE VALUE OF SUGAR.

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A news letter dated from a leading bank chides the public for thoughtlessness and carelessness in failing to cut down the consumption of sugar. It is not a case of indifference. The increased consumption of sugar is a necessity; and it has a physiological basis that may be expressed in calories. Three fuels that form a part of the human ration are in a class by itself—starch, sugar, and alcohol. Neither substance is a food in the true sense. The value of each is measured in units of heat—that is, in calories. In the breaking up of the starch molecule sugar is formed; and in the breaking up of the sugar molecule alcohol is formed. In the destruction of the starch and the sugar several products are formed: The destruction of the alcohol molecule is merely a case of combustion, the oxidation of its atoms resulting in carbon dioxide and steam.

Of the three substances sugar is a moderately quick, and alcohol a very quick fuel. The strenuous life in American cities is doubtless responsible in part, at least, for the increased consumption of both. In the past ten years the table d'hote dinner with the accompanying portion of light wine, or of beer, increased enormously. At the close of a day of severe mind strain it brougth a short period of restfulness. To a less degree sugar did the same. In 1909 the per capita consumption of sugar had increased to a little more than seventy pounds. From that time the increase was not very great during the next five years. Then it took a jump all over the United States and Europe—a result of the war. In 1919, in the United States the per capita consumption was not less than ninety pounds, and probably not far from ninety-three pounds per year. The enormous increase is explainable in only one way—namely, the demand of humanity for a quick fuel.

Light wines and beer have each a slight food value; so has brown sugar. White sugar is a robbed food and has only a fuel value. Chocolate confectionery, with its food element, therefore, has become wonderfully popular. During the war, it was frequently issued as a ration to the men in the front. To say that men craved it, is putting the case mildly.

The per capita consumption of sugar will increase in the near future possibly to more than one hundred pounds. The consumption of chocolate will also increase by leaps and bounds.

The physiological effect of the intemperate use of sugar, as compared with that of light wines and beer, is a matter which the physician must study in the near future. Of one thing a chemist may speak with authority: the use of clean brown sugar, and also of honey, is far preferable to that of white sugar. Neither one, however, will take the place of light wines and beer.

Meteorological Laboratory.

The most typical murmur heard in chorosis is the venous hum heard over the veins in the neck. It is rough, harsh, loud, and continuous, often accompanied by a thrill, best heard over the right internal jugular vein. It is often accompanied by systolic murmurs in the pulmonary area and at the apex.

HUMAN ADJUSTMENT
A New Field of Science*

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New York

The time has passed when it is necessary to apologize for suggesting that scientific method may be applied to any of the phenomena of life or thought. If apology is needed anywhere it would be for an over-statement of the results which science in a particular application had achieved, or for claiming for a purely empirical form of activity a scientific character which it had not yet developed.

In presenting human adjustment as a legitimate field for scientific work I am conscious that both these mistakes must be avoided. They are to be avoided particularly in discussing the subject with this audience composed of professional men who are working in fields that have earned this right to scientific recognition. I am also assuming that no more sympathetic audience could be found for a conservative discussion of the scientific possibilities of a new field.

Human adjustment is the process of adapting one's self to one's social environment. It is the process through which an individual finds in his fellow men and in his community those opportunities, those services, those benefits, those experiences, those forms of companionship, which will best meet his needs and ambitions as he perceives them. The power to choose that combination of work, study, recreation, companionship and educational experience which makes a full life, and to discover the sources of these vital elements in living, is a part of the equipment of every normal man. When life presents to any one of us problems which are beyond his powers he will seek the advice of those experts whose business it is to solve them. This advice he incorporates into his own plan of living, he organizes it as a part of his philosophy, of his working program.

This apparently is the principle upon which civilized races depend for insuring the well-being of their members. Its important element is the self sufficiency of the individual in the organization of his own life. It does not assume that in matters of health, of education, of bartering, his knowledge is adequate. It does assume that he will know his own limitations in these respects and seek, as a matter of his independent judgment, the asistance of those who can supply his difficiencies.

We know of no society held together on any other principle. It has never been seriously suggested that any other principle would serve. If we examine this question of the self adjustment of human beings from another point of view, however, it presents an interesting problem. Throughout social life we find countless situations in which one individual undertakes in some important aspect to influence the welfare of another. This influence may be extended through the medium of advice, through the supplying of material things, or through authoritative control. Illustrations are the relationship between parent and child, between teacher and pupil, between court and prisoner, between physician and patient, between friend and friend, between social worker and client, between clergyman and parishoner. Many of these are relationships voluntarily established by the individual seeking the services of an expert. In such situations the individual usually recognizes his dependence upon the advice which is offered and takes full advantage of it.

*Read before the Society of Medical Jurisprudence February 9, 1920, at the New York Academy of Medicine.

There is, however, among those who have occupied the authoritative end of such relationships a growing feeling that no such unqualified response can be assumed on the part of those whom they serve. The judge in modern times is increasingly interested in the prisoner who appears before him as well as in his crime. One theory of punishment is that it will through its deterrent influence, prevent the culprit from repeating his offense. Criminologists, however, have had an uneasy feeling that often the prisoner accepting his sentence because he cannot do otherwise may not view his punishment in this light. The physician who brings his scientific skill to bear upon the illness of his patient formulates a procedure of treatment which theoretically will lead to a cure. The more serious the condition of the patient the more important becomes his co-operation in carrying out this procedure. Instances of such co-operation are common enough. There has been a growing feeling on the part of the medical profession, however, that to insure complete co-operation something more may often be needed than a mere authoritative statement by the physician of what the procedure of treatment should be. There may be factors in the life or the thinking of the patient which prevent his co-operating. Education for many centuries was the process of defining for pupils certain procedure and getting them to follow it in the belief that educated individuals would result. Modern education, however, realizes that something more than this by way of response from the pupil is necessary.

In other words, in the processes of assisting individuals to an adjustment to their environment it has become evident that outlining a procedure is not enough. Success in most cases involves also the ability to influence the behavior of the individual, which is nothing more or less than a form of leadership.

There is no more tragic form of waste than the waste of highly developed skill which spends itself in prescribing lines of action for persons who refuse to follow them. This may not be strictly true of professions whose subject matter is material and impersonal, such as engineering and chemistry. Professions which deal directly with the difficulties and the needs of human beings, however, suffer from it to an appalling degree. It would be difficult to estimate the amount of futile endeavor which such professions put forth. Physicians give to their patients the benefit of their most scientific thought crystalizing in a program which often fails because it is not carried out by the patient. The same thing is true of the work of our courts, of our social agencies dealing with the handicapped and with our schools. In all of these relationships experts whose skill has been acquired as a result of long study, hard work and devotion to scientific methods are failing in a large percentage of their cases because they are not securing the necessary response from those with whom they are dealing.

In spite of some attempts to remedy this I think we have been, up to the present time, inclined to accept it as unavoidable. The human being is a prejudiced, balky creature at times; never more so than when someone is attempting to prescribe his conduct for him. There has been no general belief that his attitude toward advice, whether received under compulsion as in court, or voluntarily as when he seeks the services of a physician, can be modified. We have rather taken it for granted that we must be content with a large amount of abortive effort as the price of a large amount of success.

I have recently been discussing an experiment in preventive health work with a friend of mine who is in charge of it. In a restricted district of a large city this organization is attempting to make effective a preventive health program, one factor of which is dental hygiene. The dental hygiene program provides, among other things, for cleaning the teeth of all the children in the district under a certain age. As a result it is expected that the children will be educated to the importance of clean teeth and will, after they are educated, become faithful users of the tooth brush, and faithful patrons of the dentist for the rest of their natural lives. I asked the man responsible for this experiment how many of these children he expected to become confirmed tooth brushers, and he said—a large number. He would not commit himself more definitely than this. He evidently had in mind a greater percentage than I had, for my answer to the question would have been—a small number. The plan which was to accomplish this included careful explanation to the children at the Dental Clinic of the importance of clean teeth and the distribution of printed leaflets convincingly illustrated and composed in words of one syllable. When I consider that every tube of tooth paste which is sold is enwrapped in a circular, on the subject of clean teeth, as convincing as the advertiser's art knows how to make it, and that most American parents have struggled through years, not on those comparatively rare occasions when a child has gone to a dentist, but daily, with children who are not convinced by spoken argument or by the printed appeal of a tooth brush wrapper, I doubt whether a session at a Dental Hygiene Clinic, followed by the distribution of literature, be it never so convincing, will eliminate the waste of skilled effort which this enterprise involves. I am not minimizing the importanec of dental hygiene. It is tremendously worth while. It is worth while to have cleaned the mouth of every child in this district once. No doubt more will stay clean throughout life as a result of this effort than would without it. It is clear to me, however, that for 100% of results something is missing from the program; something which possibly we are not yet in a position to supply. The something is the power to make the gospel of clean teeth a part of the life equipment of each individual child in the district. This power again is neither more or less than a form of leadership.

Consider for a moment what happens when a physician, or for that matter any expert, brings to bear his skilled power upon a problem of health or conduct brought to him by the individual concerned. If its solution involves certain adjustments in the individual's habit of life or thought, as it will if it is complicated, certainly one essential to its solution is the complete co-operation of the two personalities involved. Ordinarily in this situation we do not have two personalities meeting in co-operation. We have merely two personalities concentrating simultaneously upon the program which is proposed by one of them; the expert. They interpret this program differently as to its inherent authority, its significance in the life of the patient, its practicability in the circumstances which govern the life of the patient and the distribution of responsibility for its success between the patient and the physician.

I am not indicting experts in general—much less

the physician in particular. I am merely trying to define a situation to which in the practice of medicine their are many exceptions. Physician and patient often enough do meet in complete co-operation, otherwise there would be little to encourage the physician in the practice of his profession. I am speaking of that large percentage of instances in which the skill of the physician is wasted because the response of the patient is not forthcoming.

The loss which results from the patient's failure to carry out this program is the patient's loss. So far as he individually is concerned he must carry this responsibility. He has gone to the physician with a definite need. His physician has given him the best suggestion which his trained skill can offer, has indicated what his patient must do to put it into effect. If the patient is unwilling to do this he must bear the responsibility for the consequences.

When this experience is repeated over and over, however, this loss has a different significance. From this point of view the responsibility is no longer individual with the patient; the loss becomes society's loss. More specifically it becomes the loss of the medical profession and from this point of view the responsibility rests upon the profession.

The situation is not different with referenec to other professions. Forms of punishment designed to reform the offender against the law offer a reasonable promise of success if the co-operation of the offender is secured. They are probably abortive in their effect, however, more often than instances of medical treatment. In the profession of social work, dealing with the adjustment of handicapped persons, relief programs, and programs for the rehabilitation of individuals fail in precisely the same way. A plan of rehabilitation is presented to an individual, carrying a reasonable promise of success, and it fails because it does not secure his co-operation. In our public schools courses of study, inadequate though they often are, are offered to pupils with the reasonable expectation that they will supply at least the elements of an education. The failure of pupils to do their part in the process makes futile in instance after instance the skilled effort of the teacher. No sound philosophy of life would relieve the individual of responsibility for the consequences of his failure, but this failure repeated over and over again cannot but be a matter of concern to society, and more specifically to those professions which are experiencing the waste of so large a proportion of their skilled effort.

This situation is so widespread as to warrant a search for the remedy. If we can clearly define the point at which our programs of skilled service break down we shall have taken the first step towards finding the remedy. In my judgment these programs break down because we have hitherto rated too low one vital element in the process of helping others to self adjustment. This element is leadership. The expert is commonly a man who has been reasonably successful in his own adjustment to life. He is inclined to believe that the power which has made these adjustments possible for him resides to the same degree, and with much the same features, in other men. He realizes that nothing more has been necessary to accomplish his own adjustment than to discover the opportunities and services which will enable him to accomplish it. When he finds himself in the position of prescribing a line of conduct to another he is thinking more in terms of how such a prescription ought to appeal to the other man than he is of those considerations which make similar prescriptions appeal to him. His interest as an expert is in his program; he tends to overlook the personality whose co-operation he needs. Ordinarily he thinks very little of what is involved in the winning of the response of those whom he would influence, or if he thinks at all the whole process is summed up in the use of such qualities in human relations as tact, sympathy, understanding, diplomacy, persuasiveness, and charm. No doubt anyone attempting to serve as a leader to another who could combine all of these qualities naturally and instinctively could win response in 100% of his cases.

Tact, sympathy and understanding work best, however, in relationships of long standing in which there is a substantial foundation of interdependence between two personalities. One friend may well be an expert to another friend. He may succeed in winning the response of his friend to a rational program of readjustment. In doing so, however, he has the tremendous advantage of intimate knowledge of his friend's attitudes, habits, peculiarities and powers, knowledge acquired through slowly maturing acquaintance. The ordinary expert-layman relationship, however, is suddenly and artificially created; no such background of inter-dependence exists. The expert must come with almost cataclysmic speed to the point of proposing to the layman a program which may involve readjustments in some of the most intimate phases of the latter's life. Obviously, those qualities which promote human relationships between friends, kindred and acquaintances are not at the outset a part of the situation. Nevertheless they must be applied to the situation if the co-operation of the laymen is to be secured. No doubt they are being applied constantly despite the difficulties by those rare experts who combine an extraordinary number of these response-producing qualities of tact, understanding, sympathy and diplomacy. For most of us, however, who are called upon to serve as experts to laymen, the art of influencing others must be developed as slowly and as painfully as any other art is developed. It is leadership in the best sense of the word. It should be a part of the equipment of any person who undertakes to influence, guide or control the destinies of another, if we are to reduce the waste of skilled effort which now exists in professional practice. It is my conviction that leadership as a factor in promoting human adjustments can be studied and developed as a professional attainment. Here is a new, and so far as we can see now, almost limitless field for science.

Some of the difficulties in the way of leadership may be stated as follows:

1. There may be in the person under treatment lack of confidence in the authority of the person who is prescribing a routine of treatment for him, or there may be a lack of interest in what he is prescribing.

2. There may be, on the part of the leader in this situation, an ignorance of the type of mind with which he is dealing, or of the circumstances in the life of his patient or client which affect the practicability of the procedure prescribed.

3. With every disposition to take the personality and circumstances of his patient or client into account, with every disposition to work patiently towards the re-education of his client, the expert may nevertheless find himself unable to express in his relationship those qualities which will win response.

Some members of those professions which deal directly with human beings; medicine, the law, education, social work, have in the past sometimes conceived of their professional subject matter as more or less impersonal. They are in a definite sense dealing with cases—a case involving a recognizable complex of recognizable factors which can be studied, understood and prescribed for. Cases are sometimes regarded as a specific crimes in jurisprudence, they are diseases in medicine, they are disabilities of one kind of another in social work. To some practitioners they are in a sense detached from the personalities directly concerned.

In the best professional practice no such distinction is made. When analysis, diagnosis and prescribed forms of treatment are most scientific it becomes apparent that personality plays an important part in the causation of the case. It is apparent also that personality plays a still more important part in treatment. (Throughout this discussion I am using treatment as applied to any prescribed procedure; not necessarily medical, but including the procedure prescribed by a court through probation, or a prison sentence; procedure prescribed by a social worker for the rehabilitation of a handicapped person, etc.)

Programs of treatment. if they are to be completely effective, must be adapted in two important particulars, to the personality of the individual affected, and to the circumstances in which he lives. Obviously this adaptation cannot be made unless both the individual and his circumstances are known. So far this sounds like a platitude. Attempts, however, in some professional fields, to secure this information in a systematic way have not only justified the effort but they have also revealed a possibility of greater significance in this sort of knowledge than we have ordinarily believed it to carry. Medicine, administration of the criminal law, social agencies for rehabilitation have recognized this greater significance by providing the means of securing it systematically through hospital, social service, probation and social case work.

Reflection upon matters of common experience will illustrate the significance of such data. A man who is asked to advise an acquantance; let us say a very much younger man, regarding the choice of a career, bases his advice upon his knowledge of the requirements of different professional or business vocations. He does more than this. He gives quite as much consideration to the personal qualities of his advisee and whatever circumstances in his life may have a bearing upon the decision. This knowledge of personality and circumstances has been acquired as he had had opportunity to observe the young man's conduct in situations varied in nature, by continuing impressions as to his attitued toward responsibility, his peculiarities and his conspicuous talents.

Now consider the procedure which should be followed by a professional vocational counsellor, representing an important type of service which has been developed within comparatively recent years. A vocational counsellor may know quite as much regarding the requirements of various forms of professional and business vocations as did the young man's older friend. He is, however, in complete ignorance of the young man's personal qualities and the circumstances of his life. Obviously any advice which he might give him without reference to these factors would be totally inadequate. Therefore he must devise ways of securing this information. This is plain common sense. Probably it is plain common sense also to assume that there is need for the same degree of information concerning the personal qualities and circumstances of life, of those who seek the advice of physicians, those who appear before a court for punishment, those who become clients of social agencies.

The only justification for emphasizing this point before this audience is that we have probably not yet conceived how substantial an amount of such information is relevant in all forms of human treatment, or how technical may be the process ot securing it. Great contributions to the understanding of the intellectual phases of personality have been made by Psychology. The contributions of Psychiatry to an understanding of the mechanisms which control conduct and the factors in the social environment which influenec their operation have been certainly not less important. I am neither a Psychologist nor a Psychiatrist. It is not for me to suggest the role which both will play in the future treatment of human beings. In the practice of social case work with which I am most familiar they have already made a profound impression. Fully realizing the achievements both at Psychology and Psychiatry I venture to state that the method of social case work itself is making a profound contribution to the understanding of human personality and the circumstances which affect it. Its particular contribution has been in the development of a method by which significant data in the history of an individual may be assembled and interpreted for the light that they throw upon his personality and his adjustment to his environment. It is my belief that a leading factor in eliminating the waste of professional skill already referred to will be an increasing use, in all forms of professional activity, of the contributions of these three bodies of principle, which are scientific no doubt in varying degrees.

I am not suggesting that every physician, every judge, every probation officer, every social worker, every teacher, must be Psychologist, Psychiatrist and Social Case Worker. I do suggest, however, that familiarity with the content of these three subjects should be acquired by every such professional practitioner as part of his professional training. More than that I believe that good professional practice will increasingly demand that authoritative analysis of cases from these three points of view be made as a preliminary in prescribing treatment. This is now being accomplished in those courts which make use of psychological or psychiatric clinics and of social case workers, and by those medical institutions using similar facilities. The results of this practice demonstrate conclusively that the use of such facilities should be extended to the entire field of human adjustment by whatever profession it is undertaken.

The use of the methods which I have mentioned ought to lead to a much better adaptation of professional programs to the needs of men. They do not, however, solve the problem of getting these programs into successful operation. This is the problem of winning the response of the person who stands to benefit most by the program. In most forms of work with individuals the failure of the individual to co-opeerate in a program of treatment is taken to justify the use of coercion or the abandonment of the whole situation by the person in charge. I do not think I overstate when I say that

this is true in all professional practice with less possibility of coercion in medicine perhaps than in the others. Balkiness, stubbornness, indifference, and hostility usually furnish an excuse for giving up the effort to help the person exhibiting these unreasonable traits. There are constantly recurring exceptions; exceptions which demonstrate that the co-operation of patients, clients, prisoners, pupils can be won without coercion and need not be an occasion for withdrawal. ' I know of only one field of professional effort in which the exhibition of these traits is consistently regarded not as a reason for quitting, but only as one more complication in the problem of treatment. This is in the field of Psychiatry, or at least in the practice of those relatively few psychiatrists with which I am familiar. The patience and perseverenec of these psychiatrists in the face of difficulties created by what to a layman is merely a perverse nature are infinitely suggestive. Of course perverse nature is largely the subject matter of psychiatry. If it can be dealt with in those who are emotionally and nervously disturbed, however, it ought to be even simpler to deal with it in those who emotionally and nervouslv approach the normal.

The problem of winning the full co-operation of those who are in need of expert treatment is a problem in leadership. The term "leadership" as ordinarily used suggests a certain measure of control or influence over large numbers of people. Leadership in this sense is denied to most persons. Leadership in another sense, however, is at some time or other required of most persons. When I reflect upon the number of individuals who at different stages of my life up to the present hour have influenced me in matters of education, health, vocation, conduct, recreation, or spiritual experience, I recognize in most of them a quality which seems to me to be of the essence of leadership. The problem of eliminating the waste of professional skill which has been emphasized repeatedly in this discussion seems to me largely a problem of developing in professional men for ready use as experts, their innate qualities of leadership. Possibly this is only saying that professional men should be tactful, sympathetic, understanding, diplomatic, plausible and persuasive. These they doubtless are in private life. These they doubtless are to a considerable extent in professional life. Professional activity in individual cases, however, calls for the exercise of these qualities deliberately and with no opportunity to permit their slow permeation of the expert's relationship to a layman, which characterize their operation in the private relationship of life. It is argued that these are qualities that cannot be acquired. It can hardly be doubted, however, that they can be developed; developed, with the risk certainly, but not with the necessity that they become artificial instead of spontaneous. Here is a starting point for scientific inquiry; an inquiry which shall discover whether there is any foundation of principle or method governing their use.

Certainly no such principles or methods can be defined at present. It is, however, suggestive to bring together some analyses of the qualities and habits of relationship which underlie the success of some practitioners in winning co-operation.

I was interested recently in the comment made by a woman of discernment upon her relationship to two physcians, both of whom had been concerned in the treatment of a case of sickness. They were physicians in different cities, consulted at different times when the family concerned had moved from one city to the other. So far as I could judge my informant believed them to be of equal skill as physicians. She found herself, however, in the case of one, distrusting his grasp of the problem despite his having given every evidence of devoting himself unqualifiedly to it. In the case of the other she had complete confidence in his leadership. When I asked her what the difference was between the two men the following five points emerged from a somewhat rambling discussion: Physician Number Two, who had been successful in winning her confidence, seemed to her first of all thoroughly and completely honest. She did not question the honesty of Number One but she had an uneasy feeling that he was not always frank. She was ready to believe that he had good professional reasons for not being frank. Physician Number Two evidently did not recognize the same reasons for he had used frankness in certain matters where Number One had not. In the second place she believed that to Physician Number Two any matter that was of vital concern to the patient was of concern also to the physician. He did not assume an obviously artificial interest in unrelated matters but he gave the appearance at any rate of considering factors which seemed to the patient to be important, however they might have seemed to him. She did not feel this to be true of Number One. In the third place Physician Number Two releaved an imagination which had a certain feel for unvoiced considerations on the part of the patient. For instance, the suggestion of an operation by the Physician at a somewhat critical time was accompanied voluntarily by a discussion of certain matters regarding this particular operation which loomed large in the consciousness of the patient but which, without the Physician's leading, would probably have been unexpressed. In the fourth place Number Two rather tended to probe for the reasons which might underlie prejudice and unresponsiveness in an attempt to remove them. Finally, the whole continuing contact of Number Two was marked by a certain warmth of relationship which was not exaggerated or feigned, but was essentially human.

I mention these items in the analysis of one layman, not because they are a manual of human relationships to be tacked upon the wall of every practitioner, or because they are necessarily scientific, but because they illustrate the conditions out of which a response is born. They reveal in one instance the kind of material with which a leader must work if he is to exercise leadership. I suggest that the scientific study of the principles of leadership will involve an analysis of an indefinite number of single instances like this. Analysis of and experience in leadership would provide us with a substantial body of case material which is the best possible form to give to scientific knowledge concerning any methods of treatment.

I should like to outline one other experience which when analyzed has a similar significance. A man who has achieved success as a social worker once mentioned to me casually that he had had an interesting time, extending over a period of months, with a young man of eighteen or twenty, whom he had found suffering from a disfigured face and a badly crippled leg following an accident. He was living in basement rooms from which he rarely went out, as he was excessively sensitive over his personal

appearance. This man, as a result of the influence of the social worker, became after a period of months, a proficient telegrapher, having been an unskilled laborer at the beginning of the relationship. Asked how he had accomplished this the social worker did not get much further than to say that he had stuck at the job and tried to overcome the difficulties which the boy's personality presented. It took four hours of discussion to dig far enough into this experienec to discover what were, from the point of view of leadership, some of its significant steps.

This boy after his injury was taken to a hospital. There is some question as to the adequacy of the treatment he received during his first few weeks there but it became clear to the medical authorities ultimately that the boy's leg should be amputated. To this he refused his consent and continued in the hospital under treatment for some time longer, when having practically recovered his general health he was discharged with the assurance that he would always be a cripple. He developed an attitude of entire pessimism regarding his future, withdrew from the world entirely to the shelter of his mother's basement rooms and had spent several months without contacts outside when he was discovered by the social worker. On the occasion of the social worker's first call the boy would not even respond to a greeting. This continued during several succeeding calls.

In an attempt to break through the boy's reserve, the social worker one morning deliberately left behind him when he called, a book and a newspaper. He left the house, walked one or two blocks, returned to say that he had forgotten his book and found the boy reading the newspaper. Thereafter he left a newspaper regularly and before long the boy not only accepted it directly but thanked the social worker for bringing it. After this experience had opened the way at least to conversation, the social worker proposed one morning that the boy make use of a reading room in the neighborhood. This would involve his leaving home and exposing himself to the gaze of others, an experience which he dreaded so much that he immediately became suspicious of the social worker and withdrew into his shell.

It took another somewhat extended period for the social worker to get him back to a conversational basis. He finally proposed to the boy that he make use of the reading room early in the morning when there was practically no one there and agreed to accompany the boy from his home to the reading room. The boy finally consented. After several trips of this sort the boy came to the social worker one day as the latter appeared at the reading room to take him home, with a copy of the New York Sun in his hand, in which he had read an article or advertisement describing an institution in New York City which straightened crippled legs. On his face was the first expression of hope and eagerness that the social worker had seen there. He wished the social worker to write at once to this New York institution asking if they would receive him as a patient in order to straighten his leg. During the weeks that had elapsed since the acquaintance began, the social worker had secured as much information as possible regarding the boy and his life, including the judgment of the hosiptal physicians as to the best thing to be done for his crippled condition. He had excellent medical advice that amputation of the leg was the only procedure which physicians would consider. The social worker knew enough about the New York institution to realize that this boy was probably not a suitable case for its service even if a patient from another city could be admitted. If he refused to write the letter he would lose any influence he might have with the boy. He therefore wrote the New York institution a clear straight-forward statement of the boy's condition and asked whether he could be received as a patient. I do not know the details of the reply except that it stated the boy could not be received and carried an intimation that this case was not a suitable one for the institution's form of treatment. Immediately the boy's old attitude of pessimism returned, intensified because for several days he had lived in the hope that he might recover the use of his leg. The social worker, however, was not associated in his mind with the blasting of his hopes. On the contrary he had a firmer hold on the boy than ever because he had co-operated with him to the fullest degree. The social worker now realized that it might be possible to take advantage of the state of hopefulness which the boy had been in during the previous week. He therefore proposed the amputation of the leg as the first step in accomplishing everything the boy had hoped to accomplish by a course of treatment in the New York institution. The boy's first response was one of bitter antagonism. His hosiptal experience had been in every way unhappy and he had no wish to return. Apparently he had not connected the New York institution with the kind of hospital where he had spent several months. The social worker let the matter rest for a time and then returned to it, finding the boy more responsive. The upshot of the matter was that he went to the hospital where his leg was amputated and returned to his home in due season once more in the throes of pessimism. A man with one leg was to him several stages further removed from independence than a man with a crippled leg. He had no interest in the social worker's suggestion that he might take some sort of training for a position which a one-legged man might fill, but after more tactful handling by the social worker, finally became enough interested in the possibility of earning an income to decide that he should like to become a flagman at a railroad crossing. This appeared to be the only kind of a job successfuly held by one-legged men within his knowledge. He could not be dissuaded from this by the social worker who finally said that he would see what the possibilities of his securing such a position might be. The first railroad official with whom he talked became interested in the story and suggested to the social worker that the young man learn telegraphy. The state had recently passed legislation which required railroads to increase greatly the number of telegraphers employed and there was a good opening for men skilled in this trade. This suggestion was brought back to the boy with all the authority of a railroad official as its source. The money for the training was provided, the boy took it, and secured afterwards a satisfactory position which so far as I know he is still holding.

From one point of view this is an illustration of remarkably patient, shrewd, human work, which any man with time and these particular qualifications as part of a strong personality, might be able to accomplish. From another point of view it suggests by contrast a large number of cases in medical practice, in the administration of justice and in the work of rehabilitation which are complete failures because sound programs of treat-

ment, of punishment, of rehabilitation, are put into operation without these qualities. I recognize that at present it would be difficult to find time to give the same amount of attention to every case of human need. On the other hand, plenty of cases with which we now fail would be successful if more of the qualities entering into this case were exercised by professional men. This would seem to be demonstrated by the number of cases which are successful because these qualities *are* exercised. That they are not more often exercised is due partly to lack of time. I believe it to be due also to the lack of the development in too many professional men of their innate powers of leadership.

These powers of leadership I believe can be developed as a part of professional training. I make this statement because I have had an experience extending over eight years of teaching in a school for the training of social workers in which my chief interest has been the development of just these powers. We do not pretend to have worked out a curriculum for accomplishing this which is as scientific as the importance of leadership in human life demands. Our curriculum, however, is developing steadily in scientific content and we have the successful practice of the comparatively small number of the graduates of the School in this field as a demonstration for whatever it may be worth.

Throughout the world of human activity we see some situations moving smoothly, their participants giving a maximum measure of effort, a minimum of loss through friction. One ingredient in the success of such situations is the fact that the relationships between their participants are marked by these qualities of leadership. On the other hand, we see other situations in the home, the school, professional practice, in industry, in public life that move haltingly, that require an endless amount of time spent in explanations and understandings, that achieve a degree of success disproportionate to the amount of energy expended by those who are engaged in them: all this because the quality of leadership as between man and man is not present. Leadership in the sense in which I have used the term seems to me to be a social force of the greatest significance. It is a force as yet little understood except in that strictly empirical sense in which we attach an indefinite measure of value to the exercise of tact, sympathy, and understanding in human relationships.

I hope I have not given the impression that I would like to see professional men developing their innate qualities of leadership for the sake of spreading abroad a little more sunshine in the world. I am suggesting it for the very practical reason that it will be a vital factor in reducing the tragic waste of expert service due to failure to respond on the part of those who need such service.

Every scientific pursuit dates from the time when some far seeing person began to probe the meanings of quite familiar things. Science has always had to struggle against the scepticism or the prejudice of those who believed that it was laying profane hands upon sacred things. It may be suggested that to try to analyze the art of life, the gift of leadership, the fine quality of human relationships at their best, in order to discover principles and methods by which men can develop their capacities for such leadership and use them deliberately, would inject an element of artificiality into what should be an entirely spontaneous and natural expression. It may be objected also that one must be born with leadership, he cannot acquire it. To the latter I will agree but not to the former. There is no phase of human thought or human life which cannot be indefinitely enriched through the application of scientific principles. As for the suggestion that one must be born with the gift of leadership, that it cannot be acquired, it is probably true. I am not suggesting that it can be implanted in a soul which lacks it at birth; but it seems to me clear that if there be any such souls they are out of place in a profession which deals with human beings.

I have spoken repeatedly in this discussion of the waste of skilled service which may be largely reduced if such service is accompanied by leadership in the making of human adjustments. I should like to say in closing that an even more tragic form of waste is the waste of human happiness, human efficiency, human welfare generally, due to the perpetuation of disease, of faults, criminal tendencies, handicaps which are not relieved because those who suffer from them do not respond to skilled service. The obligation upon professional men to eliminate the waste of service in the interests of their profession is strong. Even stronger is the obligation upon them as members of society to eliminate the human misery which continues because their service is thwarted through lack of co-operation. Either consideration would amply justify a conception of human adjustment as a new field for science.

Discussion.

Mr. Oscar W. Ehrhorn:—I am glad to see that Mr. Lee has brought forth the fact that the quality of leadership can be applied to all the adjustments of life. I feel that if there is no innate leadership in a man it cannot be developed. But with many there is a seed, and though it may be small it can be cultivated. The reason the quality of leadership is not used by some is because it has not been developed.

I am glad Mr. Lee has made reference to the importance of studying individual traits, for it is not only a mistake not to take cognizance of them, but in all the relationships of life it is absolutely necessary to study them in order to know how adequately to deal with the individual.

The subject of probation, of which we spoke earlier in the evening, rests very largely on the fact that individuals who have transgressed the law may be attended to and treated in a particular manner which suits the particular case. In medicine the physician no longer treats merely the disease, but he treats the individual who has the disease and the same principle is applied by those who deal with crime; they do not merely deal with the crime as such, but with the individual who is guilty of some lapse of conduct. It should be the desire of the community to learn the traits of individuals, as only in that way will society be able to adjust the individual to his environment so that he can fulfill his duty in the various human relationships and be a useful citizen of the community where one individual is dependent upon the other.

Dr. George Dow Scott:—I was very much interested in these sound ideas on leadership. But leadership is a part of concentration. I think the young lawyer or the young doctor does not realize his power and influence on his client or patient. He talks too much, which is a weakness. The patient wants him to be frank and truthful, but he does not want to listen to a long dissertation on typhoid fever, or diphtheria or some other disease. The thing that tells is a few short, trite sentences directly to the point, telling him a little something about the disease and the treatment outlined.

Then here is the friendly, human, sympathetic touch, that intangible something which some men can give and others cannot. The older a man gets the more he has the power of concentration and the less time he has to spend in talking, and so he puts what he has to say in more concise form, and expresses his opinion and judgment with a brevity and terseness that gives him power over the will he has to control. That is a very important point in both medical and legal work, that a man should not say too much or not say too little; the man who says just right is the man who has control.

Mr. A. B. Harrar:—The doctor has presented a very flattering subject, but it strikes me that it is a hard matter to concentrate on the development of leadership unless we have first selected those capable of developing the quality of leadership. Until we can do that we cannot accomplish anything. How can a leader be selected? How shall we decide that this man is fitted for this profession or for that profession? Until a man is properly selected for a profession, how can he succeed in leadership? The thing I gathered from the paper is that leadership is a matter of infinite patience, just as we are told that genius is an infinite capacity for taking pains.

The thing that struck me was the immense amount of patience the social worker had with the young man. Now, where

shall we get this time? The workers are so few, and the work is chosen not because the individual going into it is especially fitted for it, but because he happens to know someone who has gained great success in the work and he thinks it is the thing in which he will be more successful than in some other. It strikes me we cannot do much in the way of developing leaders until men are chosen for their professions scientifically, and until no man is led to take up a profession for money or rewards, but only for what he can do.

Who can tell us how we are going to lead a man to where he can be influenced? We know what education is and we know that some forms of education and some educational institutions are good and do a great deal for the student, yet I never have known any single institution that has done so much for the student as some particular teacher who has come into his life. This teacher who has exerted the great influence may not have had a large amount of learning, but his great influence has been based on character and an eternal sympathy, a genius for understanding his pupils, and a personal magnetism. He is a leader because he is able to put into the mind of the other man something that gives power. When a man has that sense of power and is able to impart it to others he is a leader, but until you can select men for leadership in some scientific way I do not see how we can be successful in training for leadership at all.

Mr. Lee, in closing:—I was much interested in what the gentleman who spoke last said and I agree with him. When I reflect that I am the father of three children, a teacher, a neighbor, an employer, and a patient at times, though I may leave that out as I do not exercise much influence as a patient, and in all these relationships I am a leader and must influence others, I feel that I must study how I may do this. When I see a man, who in the capacity of a neighbor, parent, employer or teacher, handles the situation successfully and when I find myself in the same situation I succeed only in messing things up, I think it is about time to see how he does it and if I can discover where I fall down. If we can build up a body of scientific knowledge based upon a large number of specific instances, which show that the same things happen over and over again under the same conditions, we may get the foundation of a method. The man who first began to work on the question of understanding the mechanism of the human mind had a much more elusive problem than we have when we first begin to study the question of personal influence.

It seems to me the man must be born with the quality of leadership, but I do not believe that having been born with the quality any man has developed it to anything like it might be developed. Take, for instance, the teacher whose personality is a telling force among his students, the range of his influence has not always been so wide; what has happened is that he has developed his capacity for influencing others through years of experience. The more I see the more thoroughly am I convinced that if a man has the innate quality of leadership it can be developed in the various relationships of life though he may never become an expert.

The point I want to make is that most of us find ourselves in places where we must influence others and we must change the point of view of others, and we find that those who have been successful in influencing others have certain traits, then if I have those traits they can be worked up and developed. If someone knows a better way of doing these things than I do then I want to study his ways and learn why he is more successful than I. If we cannot get something better by a study of this question then I shall be willing to withdraw this suggestion, but I believe that by the study of individual instances we can build up a body of scientific knowledge that will be of the first importance in trying to influence the behavior of another.

The Man Young at Fifty

BEHAVIOR AND ITS REGULATION.

The Conservation of Growth and Repair Energies Through Balancing of Action and Restraint; Personal Hygiene, Motor and Emotor. Sources and Methods of Restitution.

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Right behavior is the chief agency in raising the self to higher planes, also in physical preservation and repair. Behavior is the sum of actions of a living organism under the control of a personality, the conscious use of choice, determination, co-operation; it includes the appropriation of good suggestions and thus constitues the first or major line of defense. Upon behavior we fully reply in attaining, maintaining or regaining self respect and confidence. The second line of defense is obedience to experienced and judicious advice in adapting oneself to variations in environment and new situations. The third line of defence is the removal of obstructions to normal processes, among which are inadequacies in development and of acquired structural defects.

Body defense forces and mechanisms are ample to meet all ordinary, and most extraordinary, needs of an individual provided they are economically conserved, directed, controlled, adapted and applied. They are negatived by doubt, indecision, anxiety, suspense, or any of the elements of impaired confidence. Thereupon phenomena arise which lead to a lowering of the energies, the defense mechanisms, also to deteriorations and diseased states which then set in. The baneful effects of suspense and of psychic hyptertension are exhibited upon the body cells as causes of exhaustion, hence of deterioration. Thus the enterprise of regulating behavior should afford the largest opportunities for human rehabilitation.

We may employ the inclusive but trite term personal hygiene in describing that self-regulation of conduct whose objective is cellular equipoise or health. It fails, however, to adequately express the economic ideas and purposes now commonly so grouped. Some improved manifestations of energy must be elicited in order to guide a living creature under new, strange, varying and often perilous situations, otherwise harm or disaster ensues.

Instinct will go far toward keeping a brute on an even plane of right conduct or hygiene but, unless this is reinforced by judgment, it fails at critical points. Pressure of environmental conditions tempts the creature to yield, to slip along the line of least resistance, to grow deaf to the still small voice, to the sub-conscious (or co-conscious) monitor, and to impair behavior during the meeting of many exigencies. Thus our primal admonitions tend to become weakened, unclear, vitiated.

In the human being under high civilization the tendency is to neglect the clear light of instinct, limited as it becomes and to rely on what man, in his self-sufficiency, is pleased to call his "reason." This self-confidence or determination is commendable. Through it, as a compelling instrument, all progress in the world is initiated and sustained. Man must realize, however, that God in His mercy, has vouchsafed to the mass of humanity the light of clear reason only in simple and primary particulars, reserving for the few such clarity of vision as enables them to rely on self-determination as a guide in the cruder exigencies. Hence it is desirable to come to some under-

standing as to how, and what, the every day individual shall regard as safe behavior.

Fools proverbially rush in where angels fear to tread. The rushing in marks the man of dynamic, preponent powers of initiative, of prevision and the like prodigalities of effort. Such overt energizing is only safe for those guided by intuitions relatively sound. Similar rushings in of the herd are often dangerous, destructive, catastrophic. The vast majority of mankind are content to drift with currents, and when in doubt to do nothing, not even to "come in out of the wet," nor to observe any but the most urgent and obvious precautions.

Religious teaching appeals to the feelings, emotions, the affective facilities. The undefined objective is to reinforce or enchance the instincts of self-preservation. This is the one agency which should contribute most to the regulation of ideal behavior. In certain of the older religions these objectives were faithfully presented and enforced, notably in the teachings of the Hebrews, some part of which remains conspicuous today. Indeed as Sir James Cantlie asserts the Hebrew laws cover the whole gamut of ideal mind-and-body-as-one (psycho-physical) conservation.

Unfortuantely certain other forms of religion have subordinated this conservative purpose and during medieval times urged "crucifying of the vile body," apparently assuming a fundamental error, viz., that body and mind, spirit and soul, are separate entities. Evidence is convincing to the effect that they are one and indivisible, the spirit or soul being the highest manifestation of the psycho-physical oneness. If it should be claimed that there is a separable spirit or soul, then it follows that spirit fails of its full obligation, unless it contributes its utmost in preserving the body or the "temple of the soul."

Why? For the obvious reason that, if there be any truth in the belief that the soul is a wholly other or extraneous entity then how can we reconcile the equally prevalent and well sustained opinion that the integrity of the body depends on, can only be maintained by, right applications of volition? The middle ground is still in confusion, hence we can only reckon practically or pragmatically on the fact that, as things are, they—the body and spirit— act and react as an entity and may, till proof is adduced to the contrary, be so regarded.

Hence we return to the postulate that behavior is paramount as a constructive and reconstructive agency. For evidence of growth of confidence in the postulate we may name three groups of the most destructive agencies now demonstrated as capable of being overcome by ideal behavior or euthenics; by domination of environment, conscious control of defense mechanisms and by equilibration of their actions, reactions and interactions.

One is tuberculosis, the most destructive of infective agencies; the second is cardio-vascular-renal disease, the most destructive of metabolic agencies; a third and varied group may be called orthobiotic disorders, the product of maladjustments of motor and static structures, relief for which is to be secured through readjustments of the bio-mechanisms, through orthopedic or, what may better be termed, biokinetic regulation, the sum total of the self-adjustments through balancing of the reflexes, and thence of the muscles which are the parament agencies in conservation of posture (or attitude, active or passive), hence of functional competence, oxygenation, oxidation, in short of bio-chemical economies.

Behavior, then, implies the conscious practice of purposive control of self-regulation; the balancing of all inherent attributes, energies, functions, through the co-operation of the directing mind and the subservient body. Hence we have as prime factors in behavior the genesis of impulse, motive and emotive urgings, the feelings, the affective functions or faculties. Also correlated with these is motion, doing, performing, a balancing of actuation and inhibition of moving and of coming to rest.

Control is primarily as instinctive as inhibition, it is unconscious, it becomes automatic or habitual. All living beings possess—and their safety lies largely in obeying or exerting—this unconscious control. As man progresses in the ascending scale of evolution there appear larger, more elaborated, qualities or attributes as the creature comes in contact more and more with complex elements of environment; also as greater demands are made upon the growing purposive consciousness in his efforts to adapt himself to new, varied, strange and complex situations.

Thus instinctive inhibition merges into purposive control of an increasing elaborateness and complexity, making yet greater demands on judgment, conduct, hence on behavior. The child in particular and the mature adult also, is a born imitator or counterfeiter. Much of education is a mere reflection of what we see or bear. We mimic a manner, we copy a phrase, we emulate an idea, hence the need of good exemplars at all times and under all circumstances.

The evolution of all conscious life consists in meeting and adapting itself to new and unfamiliar situations. In proportion as the living being evolves capabilities for intelligent, economic adaptations does it first survive, next develop, and ultimately prosper and fulfill its destiny.

Behavior of the Individual or Adaption to Environment.

The whole subject of euthenics comes next for consideration: Euthenics is the science of raising the vital index, or dymanic co-efficient, by reorganizing the conditions of living and by bringing the individual into better adjustment with, and reactions to, the environment. The term orthobiotic (or the more familiar "orthopedic"), conveys a similar idea with the addition of straightening out or setting up on their dynamic bases the life elements, growth forces, survival values, latent energetics, and other agencies making for the readjustment or reconstruction of the organism as a whole. In short, euthenics supplies favorable conditions for the organism as a unity, mind and body acting in its entirety, to readjust itself spontaneously to environment.

As a branch of euthenics, yet constituting a subject of such magnitude as to stand alone; is: personal hygiene—regulated conduct and behavior. A well rounded knowledge of the elements of conservative behavior affords the greatest help—by no means supplied as yet in the medical schools as it deserves. This is self-regulation of conduct, the acts of life, and of behavior, the emotional attitudes which one assumes toward living, as contrasted with sanitation or communal regulation.

Personal hygiene may be pictured as preventive, conservative, constructive, reconstructive, and vigilant, and has for its objective the conception, determination, and application of approved rules of life and conduct. These demand constant revision and training, whereby best guidance is given to latent energies, inherent capabilities for growth, functional harmonies, for development and for repair, also as to the means whereby these may be conserved. Thus human dynamics come to be so enhanced and am-

plified as to qualify the individual to become the best his or her personal endowments render possible. In pursuing methods for conservation much also is accomplished toward making for prevention and cure. Preventive personal hygiene is a subject so obvious it need only be mentioned here in the interest of completeness. It is the most important enterprise and merits separate consideration.

We will here offer a sketch of three subjects, and later a fuller account.

Conservative Personal Hygiene.

This department of human betterement, through regulation of conduct, large and varied as it is, may be here disposed of in a few words, so that we may pass on to those inviting fuller consideration.

Under conservative personal hygiene we may include those common sense measures, fairly well known and of recognized efficacy, which contribute to the maintenance of fitness in normal human beings, by improving environment, conduct, balancing activities and rest, also the points of view, in the physical, mental and moral domains, thus encouraging the evolution of all inherent energies. "Environment influences the tangible body and also the psychism." Everyone requires a constant revision in methods for betterment, from cradle to grave, to exercise a ceaseless vigilance and industry. Everywhere, and for all, there are difficulties to be overcome. No full development can be achieved except by struggle, competition, and unremitting endeavor. Behavior is intimately associated in the enterprise at all stages of advance.

Memories are called forth, association processes stimulated, by well directed physical agencies, from consciousness in cells as well as in cerebration. Among the dynamics of environment, producing reactions upon the consciousness, encouraging initiative, determination, strategy, selection, are: physical forces such as light, darkness, heat, cold, work, rest, dryness moisture, hunger, food, and the like external stimuli, and always the ubiquitous and compelling forces of electricity (electrotonics).

The dominating objectives of life are to secure, appropriate and eliminate adequate amounts of oxygen, nitrogen, carbon, phosphorus and sulphur to meet the requirements of metabolism or body chemistry, and to convert these into, and maintain, healthy tissues and tissue respiration. Opportunity alone never suffices; some compelling force is needed to stimulate effort. The force may emanate from within or from without.

Along with opportunity and impulse arousing there should also be intelligent guidance from both within and without. Through personal experiences are formed habits of selection and rejection. The individual cannot be wholly receptive or passive, although no large amount of effort is required to pursue conservative measures. While it is desirable to accept with philosophy whatever state of life it may have pleased God to call one, the exigencies of every day, or week, call for some modification of existing conditions, making for improved ones, in environmental adjustments, in temperature range, in ventilation, protection, shelter, clothing, food, effort, amusement, fixed attention, and the like (euthenics).

In order to secure the obviously desirable one must guard against deleterious agencies and influences. The value of prevention of disease is coming to be steadily realized, and between the dependable measures we are now able to differentiate with some accuracy. Among things to avoid or guard against are mosquitos, flies, hurtful degrees of light, heat, fatigue, and the like. The subject involves the whole range of *sanitation*, federal, local, personal, in which the individual is first negative and next receptive, rather than active. We are reminded by V. C. Vaughan that the chief danger of infection is due to accidental human contacts, through acts of human carelessness (64%), whereas those from flies, mosquitos and other recognizable agencies constitute only 15%. Always the element of fatigue must be reckoned with, a peculiarly hurtful agency in the mature and elderly. Fatigue, leading to exhaustion, is capable of not only imparing function and retarding growth in the young, but also of damaging structures, devitalizing organs, opening the door to any or all sorts and kinds of morbific agents, infective or metabolic. Excessive and continued fatigue is capable of defeating the best agencies for conservation in young or old.

The effects of fatigue vary in kind and degree. They are conditional upon (a) original make-up or constitution, and (b) primary training; but especially, in military and industrial exigencies upon, (c) the quality and character of the special preparatory training. Here also lies the crux of survival values, recoverability from structural damage and also from shock in any of its modalities.

Constructive Personal Hygiene.

The factors in constructive personal hyigene are, first, an individual who is not impaired by injury or disease, but who fails to qualify as normal, or up to standard; whose deficiencies or defects are capable of demonstration or reliable inference, and second, the selection and application of constructive measures, modifications of environment qualified to amplify latent powers and leading toward whatever degree of development the individual is capable of, in accordance with his inherent powers, limitations, type and design.

Here we have at command all the powers grouped under conservative personal hygiene and many more. The task of the expert is to determine the nature of the concrete problem, such possibilities and needs as exist, also to make wise, active, cooperative and expert use of all inherent or available resources consistently and persistently.

In this domain of constructive endeavor lies the reclamation of rejected recruits in war or the industries, in whom rejection was due to remediable defects or deficiencies rather than to fundamental shortcomings.

Reconstructive Personal Hygiene.

The factors with which to reckon are:

(1) An individual of any age or condition in life whose constitutional vigor or health has been so depressed by disorder or disease or injury in the physical or mental domain as to place him or her below the plane of normal or customary efficiency.

(2) The eliciting of all those forces for repair from the effects of disability which can be brought into action, and also the raising of the index of effiicency by bringing into the field of action hitherto unrecognized capabilities, also the rendering of them available till a higher plane of efficiency is reached than the individual has heretofore enjoyed.

This program can be carried out in more instances than is ordinarily regarded as possible, and to degrees oftentimes far beyond expectation.

Among the reasons why full rehabilitation is not done as often as it can and should be are these: the individual, or those who exert (or should exert) authority over him, too often will not co-operate frankly, faithfully, and consistently with the adviser, in short there is erroneous behavior. Again, the medical adviser is too often content with acting merely as repairer of recognizable disabilities and loses sight of his higher duty as conservator of latent powers of both health and efficiency. Nowhere in the domain of medical art does there lie larger opportunity for gratifying results than in this realm of reconstructive personal hygiene.

The central aim of the health conservator is to reinforce inherent energies, to perfect latent or impaired power. It is but a limited and perilous conception of professional duty to merely repair damage or injuiries, to overcome effects of disorders, or even to cure obvious disease states. The real purpose should be to amplify and reinforce latent powers whereby health shall be attained, maintained and automatically regained.

In the field of restoration large individual abilities are frequently exhibited by the proponents of restricted medical specialisms. Best effects are, even therein, due to the degree of wisdom shown in dealing with the broader factors involved by supplying constitutional needs. The solution of most problems in restitution often lies in appraising the exact status of the grosser mechanisms and in correcting many contributory disabilities not ordinarily recognized as significant.

It is entirely possible that a large proportion of men slightly injured or diseased, or mentally impaired, who are kept under observation and dominent suggestion in hospital, can be so remade, restituted, as to return to service distinctly better for this experience. Evidence of the value of this personal training in hygiene is massing. Personal experience of the individual in afflictions here as elsewhere always proves a boon. Even the splendid confidence of youth constitutes a peril and often leads to a prodigal squandering of survival forces until the lesson of caution, conservation, and finally confidence becomes learned. Even the selected group found in military service is not exempt.

Every person, young or old, is capable of a notable increase in vital dynamics by revising modes of life. This is particularly demonstrable as middle age approaches and tissue elasticity subsides. From earliest years the child begins to retrogress, to lose pliability, adaptability, adjustability; to fall into one or another form or kind of rut, of apathy or of disability. Some of these deviations from physical normality merge into serious retrograde changes, often shown by tissue rigidities, densities, the product of faulty habits or vitiated automatisms, due to omissions of suitable variety in both impulses and movements, in actuation and inhibition, whereby alone symmetrical action and reaction is assured. The factors involved are both psychogenic or mental and somatogenic or physical. The exhausting effects of routine, of monotony, are prostrating. Stimuli should be constantly varied; suggestion or auto-suggestion is rarely adequate to preserve vital rhythm. Individual resourcefulness is seldom great, or only exhibited in restricted and specialized lines. Hence it is of value to invite skilled direction from one who has achieved a well-rounded familiarity with human perfectibility, needs, and derangements, and can judiciously point the way.

The one great lesson taught by war, or severe industrial competitions, is *the paramount need of conserving man power at the source*, i. e., from earliest childhood, likewise at every stage of development, to the last downward curve.

Human health, constituting as it does the basis of economies, is steadily coming to be recognized at its true commercial value. Breadwinners especially are awakening to this fact, and beginning to appreciate expert professional aid in perfecting and maintaining bodily efficiency. In war, the duty of the military surgeon is above all else to return the fighting man to the ranks at the earliest possible moment. Precisely the same duty obtains in the industrial strivings. Not only should the physician meet immediate exigencies, deal correctly with confronting difficulties, but he should search out and correct underlying and contributory causes, which may keep the individual on a lower plane of energizing. He should do much more, make occasions and seek earliest possible opportunities to learn all relevant facts bearing upon the vital or emotional status of those in his charge. Only by knowing facts can he advise economically. Here we turn again to the function of behavior.

The tendency is for each conscientious and courageous citizen to make the best of his condition; to treat lightly unobtrusive ailments; to forge energetically ahead, to ignore slight symptoms, especially his feelings or psychogenic phenomena. Hence it too often happens that serious states of disorder become revealed only when far advanced or too late. This disregard of ailments is ethically commendable. It makes for valor, for endurance, for renown, for character building, for ultimate success. Through pertinacity only are the highest ends achieved. Carried to its logical limit, however, it lures the ignorant optimist to a state of perilous monism. Conversely, to err by over much self-searching leads to hypochrondriasis, timidity, inefficiency. Most physicians are aware of this, but there are different degrees of awareness. Some impressions, even some convictions, are cloudy, inexact, or worse; they fail to act as stimuli to right action. A nicety of judgment, of right behavior, is needed in solving such problems. For instance, it will prove a boon to a man complaining of a slight indisposition for the physician to discover and rehabilitate an organism never heretofore brought to that degree of vigor and stability of which it is capable, and which when reached would have enabled him to attain greater power in life. He may have been handicapped by minor physical defects, may have been wasteful in method, under-developed, lacking in some essential particular, or all these may have combined to keep him low in the economic scale. Unwarned, over-confident, a man often assumes increasing burdens and presses on to, or beyond, the limit of his working powers. Then there ensues some minor or major accident or disease, and a useful life is warped, mind and body are distorted. All this constitutional dwarfing could have been avoided by adopting one or two causes of action:

(1) Had the family physician been observant, wise, and, above all, dominant, corrective measures could have been instituted sufficiently early. Prevention is here the paramount issue.

(2) Had the individual himself been duly alive to his economic needs, advice would have been promptly sought capable of establishing full working efficiency. It is equally important to avoid or overcome

the oft-recurring tendency to apathy, "nil admirari," "laissez faire," "letting well enough alone," or of sinking into the torpor of despair.

Behavior As a Basis for Rehabilitation.

At the very foundation of rehabilitation or restitution stands the elements of behavior, the reactions of man to environment on the plane of feelings and emotions. Behavior may be described as the evocation and regulation of growth forces in so far as the individual is capable of applying his personality to the task. Be environmental conditions what they may, the final product is always and ever in accord with the degree and kind of self-mastery exerted. Self-control should be automatic, an instinctive poise of the body and mind as a whole. When in addition this consciousness control shall become purposive, through awareness of voluntary powers and how to use them, also of their limitations, likewise of obligations to practice control, a much larger and more complete mastery will result. There thus becomes formed a dependable group of protective forces (automatics) against all sorts of adverse circumstances.

Conscious purpose and control is therefore to be recognized as the most efficient of life saving and reparative agencies. Especially is this forceful when supplemented by judgment in determination and selection of the best means. While self-poise must be initiated during earliest years in order to be wholly effective, it is capable of contributing to conspicuous betterments at any age and condition of life. Blunders are made in proportion as the individual becomes aware of his limitations and is wise enough to seek the aid of the accumulated wisdom of past experiences.

Ideal behavior in an individual begins by his becoming aware of capabilities to do his uttermost. All failures, except in those rare persons fundamentally defective, may be attributed to discouragement; the worst form being that which arises from timidity or uncertainty. The essence of personal achievement is to assume ample capabilities and put them valiantly to the test.

Power enough and to spare always exists in every normal person, ready as a supply for the guiding mind. The greatest of human beings is the wise mother whose distinguishing attribute is the inculcation of just these dependable, common sense, yet too often obscured or perverted, energies.

One word of caution just here. No personal endowments nor impulses, be they ever so great, will suffice to carry one safely through all complicated perils. Self-confidence, untempered by caution, readily becomes overblown into rash optimism, the "leap before you look" variety so dear to the prophets of Eddyism.

Some More Technical or Psychologic Points in Behavior.

In order to get a working knowledge of the elements of behavior one should achieve a fair idea of the psycho-physiology of the affective faculties. A few reminders as to the nature and character of the so-called "flood of neurility" (George Von N. Dearborn) which flows over and through the human being as a whole, inducing those picturesque, interesting and clinically significant manifestations known as emotion and feeling, may prove useful.

The technical name of the fusion point of afferent nerve impulses, "the mind's dynamic index of the body, and thereby of environment, is general sensation, coenesthesia." The term common sensation, coenesthesia, is used to describe the sum total of those sense perceptions whereby we are aware of things going on in us, excepting those direct and specific percepts gained through five original or major sense organs, of vision, hearing, taste, touch and smell. No one sense organ works alone under primary and natural conditions. The product always results from the sum total of unimpaired impulses proceeding along unhindered channels. Thus "the senses" have been found far more numerous, rising to eighteen, then through various subdivisions to three hundred.

The information we get from common sensation or general awareness (coenesthesia) includes those sensations arising from varied and complex sources; from the viscera, especially such of them as are hollow; from the fascia, muscles, also the joints, bones and most of all from the skin. Definite perceptor actions are not as yet fully worked out notwithstanding the enormous research done upon them.

"Common sensation is a compound complex unit group of experiences produced by multitudinous sense impressions from innumerable sources blended together, the tide rising and falling, the impacts bumping and jostling from local and general sources, from all parts of the action system, the stimuli being motor or thermic energy from and both within, but mainly from without, coming mostly from 'the universal inherent movement of the organism'." (G. Von N. Dearborn.)

Each feeling and emotion and motive (urge) differs from every other; each phase of coenesthesia being unique; each phase corresponding to a special group of bodily movements or enegizings, or strains or innervations. "There are three very general principles of relation between the common sensation and the movement of the body: (1) the sensations are increased when movements 'begin' after resting; (2) when the movements are increased; and (3) when the receptor surfaces are deranged, e. g., by weariness, stress, counter-action, trauma, chill, excess heat or other elements of shock—a throwing of the organism out of gear."

Henry Head, of London, is the pioneer in the location and sensation experiences of the dermal zones related to disturbances within the thoracic and abdominal cavities, and the complex subject of referred pains. This constitutes the basis of one of the most significant departments of clinical medicine or surgery. "The ganglion or the posterior spinal root probably serves to connect (through the basket reticulum) the sensory sympathetic and with the afferent spinal pathways proper."

The subject of the autonomic and vegetative nerve systems are now becoming elaborated and more thoroughly studied in their relationships to common sensations and particularized phenomena. All this is common knowledge and, as will be plain, bears illuminatingly on the subject of behavior as a whole or in its specific relationships. Here it is only permissible to direct attention to this fascinating subject by detached suggestions.

The skin sensations are of peculiar clinical importance, and their relation to each other to pleasure and pain. We know too little of them as yet, except that they occur naturally and more or less together. Atmospheric influences affect the skin and each kind of receptor, affecting the organism as a whole and oftentimes favorably to a remarkable and hertofore unexpected degree.

Henry Sewell has emphasized the particularly advantageous effects of air in motion, by impacts upon the body surface as explaining the tremendous importance of life in the open and moving currents of air as stimuli to energy. Ventilation problems are being revised in accord with this principle of air in motion, and our adaptation to them.

Each organ and tissue has receptive fields of its own and each contributes in its peculiar way to the total coenesthesia. Here we have the common ground of euphoria and dysphoria, subjective symptoms of disease in their relation to feeling tones, emotions and motor ideas which color and determine behavior.

The sensus communis, according to Ladd and Woodworth is "the product of growth, experienced and experiencing."

But space is limited, so may be the patience of the reader.

The topic will thus at least be shown as of a fascinating largeness and practical significance.

To "behave" is a far "larger order" than to cease offending the conventions.

Sir Auckland Geddes, M.D., British Ambassador.

Physicians are gratified at the recognition given to an honored member of the medical profession by the selection of Sir Auckland Geddes as British Ambassador to the United States. Sir Auckland is a physician and a teacher of physicians and, in addition, has had a brillaint experience as Minister of National Service in the cabinet of Lloyd George. Moreover, he is a medical statesman who sees beyond the present to the greater function which medicine may perform in the newly reconstructed world.

Special interest attaches to the views of Sir Auckland concerning the medical profession in the new era. Americans are privileged to secure such a view in the volume of "Contributions to Medical and Biological Research" dedicated to Sir William Osler, which has just come from the press. In this volume, under the title "Social Reconstruction," Sir Auckland gives a vision of the opportunity of the physician. "We are at this moment," he says, "in the power of a world-wide emotional storm the full effect of which is not yet manifest. Is the Armada of civilization to be dashed to pieces on the rocks now almost beneath our bow? The issue may well be in doubt for years to come. It depends largely, though by no means exclusively, upon the medical profession.

"Much of the new chart that is now preparing has to do with physical health and clearly can be accurately plotted only by men who know the achievements and limitations of medical science. Already the politician and the civil servant, untrammeled by medical knowledge, are becoming health experts and are at work plotting the chart. There is great danger in this, but it is useless to cry for spilt milk. It is peculiarly useless for the medical profession to cry, for the pitcher was in their hands. If only we can round the rugged promontory of the next few years, and if the future be consciously and conscientiously prepared in the universities, in the schools, aye, in the nurseries, and if the medical profession clearly and carefully speak the truth, so many correctly plotted points may be added to the chart of human life; then the fleet of humanity will come safe to port in spite of all. We cannot hope that every point plotted will be correctly placed. We cannot hope so much from this generation of doctors as we may rightly expect from the next; but if we could all see, as I believe many medical men in English-speaking countries do, a little further and a little more clearly than the lay world in the direction in which the emotion of human betterment is driving us, then the now middle-aged might live to rejoice at the recognition of medical science as the main basis of political action, for all political action aims nominally at least to secure the heath and well being of the people."

Sir Auckland criticizes the training of physicians because it does not develop citizenship. He declares that doctors are "immature citizens." with their knowledge of citizenship "divorced from their technical knowledge." Discussing this point further, he declares that "the measure of failure of the medical profession is to be found in the revelation of the recruiting medical boards, and in such documents as the Report of the Royal Commission on Housing in Scotland. If the medical profession had been using its technical knowledge in the interests of the State as a whole, it would have been insistent years ago in the demand for better housing, for better feeding, for better wages, for shorter hours of labor, not for itself but for the toiling millions to whom it ministers. Isolated voices were heard, but the demands that could not have been resisted were never made. The profession had only to organize its own knowledge and tell the truth about the conditions of the lives of the workers to compel the emotion of human betterment throughout the world to force action."

Fortunately, Sir Auckland sees the prospects of better conditions both for the world and the medical profession. He finds this prospect in the newly released force of womanly instinct and emotion. "The male," he says, "in virtue of a million years of war, is a fighter," for whom the day in which he lives and the action of to-day "are more important than the morrow which he may never see, or the fruits of autumn which he may never know." On the other hand, the instincts of motherhood teach women to see in the child the adult that is to be. Thus, while the male "is equipped to fight the invading bacillus for his patient's life," the female reacts as surely to "the slow drawn torture of over-work and bad housing."—(*Mod. Med.*, Vol. 2, No. 4, 1920.)

New Form of Influenza Appears in Vienna.

Three hundred cases of a new form of influenza, thought by the Viennese and American Red Cross physicians who are treating them to be allied to encephalitis lethargica, are being treated in the hospitals of Vienna.

The disease attacks the brain, inducing violent and painful muscular convulsions. Pending the coining of an exact medical term, it is temporarily known as influenza of the brain.

Of the 71 cases of brain influenza treated in the past month with the aid of the American Red Cross, 40 have already resulted in death. The disease ordinarily begins with headache and sleeplessness, followed by increasingly violent convulsions of the stomach muscles not unlike those produced by acute appendicitis. In one case on record here the stomach convulsions were so characteristic that the patient was operated on and the appendix removed.

From the stomach the convulsions pass to the limbs, face and extremities. In some instances the muscles of the eyes are paralyzed, forcing the eyelids open and inducing an illusory appearance of insomnia even in patients lying in the profoundest stupor.

Fever does not necessarily accompany the malady in the early stages, but later it appears and the patient passes into violent delirium accompanied by acoustic and optical hallucinations. In the worst cases death comes in a few days. Persons between the ages of 18 and 35 are most often attacked. Prospective mothers appear particularly vulnerable to the disease. No successful treatment for influenza of the brain has yet been discovered. Medical science is powerless to combat the malady, which is spreading to an alarming extent throughout Austria.

Tumors of the Kidney.

A study of renal tumors shows benign tumors of the kidney to be very rare, says E. S. Judd. Solitary cysts that may be enucleated from the kidney are sometimes seen. Congenital, bilateral polycystic disease is more common, but it is not particularly amenable to surgical treatment. Patients are usually very anemic and have a low kidney function. If one of the cystic kidneys is also infected and the other is free from infection, it is sometimes advisable to remove the infected organ. Judd's experience with the Rovsing operation, which consists in collapsing the cysts in first one kidney and then the other, has not been entirely satisfactory. The common tumors of the kidney are malignant, either hypernephroma or carcinoma in the adult, or sarcoma in children. The results of nephrectomy for hypernephroma have been more permanent than those of most operations for malignancy. The tumor develops slowly and, if operated on before it becomes fixed by attachments formed from extension, especially through the pedicle and extensive lymphatic involvement, the results are very satisfactory. If the tumor is large and fixed no operation should be attempted, and it may be well to use radium. Some of our patients with inoperable tumors who otherwise were in fair condition have seemed to do very well under this treatment. Operation for carcinoma, and for sarcoma of the kidney in children is less favorable; while a very large tumor may be removed successfully it will usually recur early.—(*Minn. Med.*, No. 5, 1920.)

Obstetric Nursery Appliances.

H. Thoms, New Haven, Conn., recommends the use of a small aluminum tag for the identification of newborn babies in hospitals, with a raised edge that can be readily scratched on with a steel pencil or stylus. He also describes and illustrates modified hemostatic forceps for reducing adhesions on the perpuce and glans in place of the ordinary hemostat often so used.—(*J. A. M. A.*, Feb. 28, 1920.)

The Medical Times

A MONTHLY JOURNAL
OF
Medicine, Surgery, and the Collateral Sciences
ESTABLISHED IN 1872

EDITED BY
H. SHERIDAN BAKETEL, A.M., M.D., F.A.C.P.
ARTHUR C. JACOBSON, M.D.
Associate Editor.

Contributions.—EXCLUSIVE PUBLICATION: Articles are accepted for publication on condition that they are contributed solely to this publication.

When authors furnish drawings or photographs, the publishers will have half tones and line cuts made without expense to the writers.

SUBSCRIPTION RATES:
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UNITED STATES . . . . . $1.00 per year
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CANADA . . . . . $1.25 per year
FOREIGN COUNTRIES IN POSTAL UNION . . . . $1.50 per year
SINGLE COPIES, 15 CENTS

Definite written orders for THE MEDICAL TIMES are required from all subscribers, to whom the journal is thereafter regularly forwarded.

Notify publisher promptly of change of address or if paper is not received regularly.

Remittances for subscriptions will not be acknowledged, but dating on the wrapper will be changed on the first issue possible after receipt of same.

All communications should be addressed to and all checks made payable to the publishers.

MEDICAL TIMES CO.
ROMAINE PIERSON, *President and Treasurer*
H. SHERIDAN BAKETEL, *Secretary*
95 Nassau Street, - - - New York

NEW YORK, JUNE, 1920.

The Absolution of Dr. Warbasse

The Associated Physicians of Long Island have dignified in a manner obviously far from their intention the views of Dr. Warbasse on various matters, as well as the man himself. In the first place they published his allegedly "un-American" articles, on which so much general attention has been bestowed, then its special committee studied them with great care and devoted much time to thinking about them, and finally the association received this committee's report (written, by the way, *à la* Dogberry) and acted upon it in the punitive manner reported in the April issue of the *Long Island Medical Journal*.

The action taken absolves Dr. Warbasse from the suspicion of being a mere sociologic dilettante, enjoying the fruits of the present social order while dabbling in the miseries of the proletariat—for which no conventional organization, medical or otherwise, has ever sought to humiliate any member—and places him in the category of admittedly able menaces. If he were not an able menace, but only a nuisance, he could and would have tolerated kindly or suppressed diplomatically. A nuisance, for example, could have been very effectually dealt with through sabotage and ridicule, but Warbasse, it appears, aroused no one's risibilities. He is evidently not a joke, but a personage portentous of something which the members of the bourgeoisie do not like and which is subtly disquieting. He symbolizes something fearful (to us) and inevitable that we all sense just beyond the kingdom of things as they are, but cannot see clearly, much less understand. Not in the rôle of harlequin has he plagued our feasts, but like the ghost of Banquo, terrifying medical Macbeths with intimations of the social order that is predicated soon to be.

So the suspected mountebank definitely passes, and the personage, thanks to those who would wish otherwise, emerges.

We have had our own doubts about Warbasse, but so many Salomes have reached out their chargers for the head of John Baptist that the prophet seems to be unmistakably revealed.

We are bound to confess that Dr. Warbasse's continued membership in this association could hardly have been "conducive to its best interests," to quote the language of the resolution suggesting his withdrawal. Roger Williams *redivivus* will doubtless found a spiritual Providence.

Dr. Alfred K. Hills

Dr. Alfred Kimball Hills, for years editor of THE MEDICAL TIMES, died at his home, 190 Riverside Drive, New York, on May 2, in his eightieth year.

Dr. Hills will be remembered by many friends as a charming gentleman of the old school, whose graciousness and tact, coupled with rare professional skill, won him a large clientele.

He succeeded Dr. Egbert Guernsey, the founder of THE MEDICAL TIMES, as its editor and controlled its

destinies for a long period. Ten years ago it passed into the hands of the present owners, and Dr. Hills retired from active journalistic labors. He gradually relinquished the burdens of a large practice and for the past few years spent much of his time on the ancestral acres in New Hampshire.

A competent physician, a good friend and a fine citizen has been lost in the passing of Dr. Hills and his wide circle of frirends are the poorer in his translation.

The Associated Press announces that Dr. Hills leaves approximately $900,000 for the founding of an industrial school for boys at Hudson, N. H., to be known as the Alvirne Industrial School. This will be available after the death of the testator's wife.

The Public Health in Time of Revolution.

In matters of public health the Revolution in Hungary made conspicuous progress. Medical idealists cannot help but believe that the memory of these notable achievements will survive and that they will again be revived.

After the passing of the Karolyi and Kun revolutionary governments and the advent of the reactionary régime the bathing places which had been made available to the masses were abolished and the cottages, mansions and resorts of the wealthy which had been converted into tuberculosis sanatoria were returned to their former uses. Eleven professors at the Budapest Medical School who were liberal-minded, and had participated in the public health projects of the revolutionists, were dismissed from their posts. Physicians and trained nurses employed during the Soviet régime automatically lost their employment and the reactionaries did not employ others or create new organizations to replace those abolished. The trade in drugs was given over to the profiteers; aspirin, for example, increased in cost about 4,000 per cent. The advertisements of charlatans, particularly of the venereal persuasion, were again permitted to appear in the newspapers. Under the Red rule these had been strictly proscribed. The hospital rate of ten crowns daily under Soviet administration was increased to fifty-one crowns.

Under the Communist régime there had been much reform in matters of social hygiene and money was never spared in effecting sanitary progress.

The various hospitals, laboratories and institutes were unified in administrative operation and thereby rescued from their former state of "capitalistic anarchy."

The housing problem was met by requisitioning rooms, with the use of bath rooms, from the residences of the bourgeoisie and therein sheltering those proletarians who had previously lived in unbearably overcrowded lodgings, similar to those recently denounced by the Commissioner of Health of New York City, whose inspectors have reported instances of three families living in four-room apartments, with four persons assigned to the kitchen.

Private and public disinfecting agencies were unified in one huge organization and their cleansing efforts concentrated upon the proletarian tenements.

Cremation, formerly forbidden, was sanctioned and encouraged. For every thousand school children one school physician was appointed.

The hospitals were supplied with drugs, food, etc., through a central office. In the hospitals patients, physicians and employees received the same menu.

All available means were exploited in the struggle against tuberculosis and cancer, many institutes and special research laboratories being founded.

A radical reform in medical teaching was projected, not involving any far-reaching changes in the faculties, but designed to level up the practical skill of the entire profession and make it available to all the people.

Many of these things sound to us like a kind of Alice-in-Wonderland recital. They, of course, represent the high lights. There were shadows in the public health administration, too. But on the whole much was done that challenges our admiration, and the loss of which we regret.

Why must such things wait upon revolution?

The Carnage of Peace

The mortality from Preventable accidents still puts that of the battlefield to the blush. Mr. Price, general manager of the National Safety Council, recently furnished some authoritative statistics on this subject. During those nineteen months of the war in which 47,949 American soldiers were killed or died from wounds received in battle, 126,000 men, women and children were killed in the United States, 35,000 in industry and 91,000 outside of industry. Of those killed outside of industry, 25,000 were children. "During those nineteen months our boys were fighting on the other side of the water, there were two hundred and twenty people killed in this country every twenty-four hours, and it would take a ditch forty-eight miles long and as wide as the ordinary sidewalk to hold the bodies of those one hundred and twenty-six thousand men, women and children."

Mr. Price believes, and so maintained at the first annual Massachusetts Accident Prevention Congress held a few weeks ago, that three-fourths of all deaths and serious injuries in American industry could be eliminated if the manufacturers so desired.

Tolstoi: Satyr and Saint

The influence of the physical upon the philosophical man stands out significantly in the case of Tolstoi. The later saintliness seems to be only a transmuted phase of the earlier sexual vigor of the man.

"His animal passions were strong, and the looseness of morals of society lent them rein." "I lead an animal life," he said himself.

He left the university at nineteen and gave himself up to "hunting, gambling and carousing with Zigani dancers."

There were "twenty years of coarse dissipation" (from fourteen to thirty-four). At twenty-seven it was "sprees, gipsy girls, and cards all night long."

With the decline of his sexual vigor began the morbidly religious and socialistic phase; exit the satyr, enter the saint.

But this sort of thing is not limited to colossal geniuses. We are familiar with a number of instances furnished by gentlemen who, after the decline of their sexual vigor, become shining lights in anti-vice and sanitary and moral prophylaxis societies, and preach much about continence.

What fools these mortals be! Eheu! it's a queer world, my masters, in which one can't be a saint unless he's a great sinner.

We leave the paradox to our accomplished sophists.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

A Novel Suggestion

The *Sun and New York Herald*, in a recent issue, argues against what it considers the needlessness of State examinations of the graduates of professional schools before they can enter upon practice. If such graduates are properly prepared and trained by competent teachers there is no good reason why they should be subjected to the hardship and expense of additional examinations conducted by the State. But the point of the editorial to which we wish to draw special attention is found in the very interesting and novel suggestion that it is the teachers, and not the graduate students, who should be tested for their competency.

Amen, say we.

Hero and Wife Beater Interchangeable Characters?

Dr. Maurice de Fleury, in his "'Mind and Medicine," which has been named by the French Academy, thus describes what he calls the hypersthenic man, or the man of vast nervous force:

"The hypersthenic is always proud and masterful, courageous, bellicose and fierce, pitiless because he has himself no need of pity, and constantly on the brink of exasperation. Should the conditions of his daily life not consume his excess of vitality, his need of expending his super-abundant energy, the suppressed steam of his human machine, his turbulent strength strives to find an outlet and to strike. In time of war such men prove themselves heroes and brave death so as to win the admiration of the world.

"Such men have merited statues simply for having soothed their nerves by lawful butchery. So superb was their valor, so lofty their disdain of danger and death, so magnificent was their attitude, so noble and so sacred the cause they served that the multitude could not fail to be moved by the tragic beauty of the spectacle they offered.

"It may be that those very same men, who make so great a figure in the history of the First Empire—born for the most part in the lower ranks of life, who rose by their own valor to the state of dukes, princes or kings, might have come into the world in a time of profound peace, when their superfluous force might have expended itself, for want of other means of dispension, in quarrelling with their neighbors, beating their wives; or, worse still, their natural heroism and overwhelming vigor might have found its entire use in such miserable doings."

Correspondence

Work Dodgers.

To the Editor of THE MEDICAL TIMES:

On page 98 of the April number of THE MEDICAL TIMES, the writer is inclined to think that the old hymns were written by some of these tired people—the work dodgers. We have later authority on work dodgers than our old hymn writers. In that jumble book, the "Key to the Scriptures," by Mother Eddy, of blessed memory—we find: "The Scriptures inform us that sin or error first caused the condemnation of man to till the ground and indicates that obedience to God will remove the necessity." Our tramps are our expert work dodgers. Can it be possible that it is by obedience to God, these vagabonds are relieved from work?

W. F. McNUTT, SR., M.D., R.C., PH. ED., etc.

San Francisco, Cal.

The Talmud, Not Freud.

To the Editor of THE MEDICAL TIMES:

On page 50, MEDICAL TIMES, February, 1920, you begin an editorial: "Freud's discovery that man frequently attributes to others the fatal weakness that makes his own heart a hell," etc. Now this discovery was not made by Freud, but by the Talmud which Freud, as a son of the ancient race, has probably known.

In my article, "The Psychology of the Faddist," *N. Y. Med. Jour.*, October 7, 1916, I quote the place in the Talmud in the following way: "He who befauls others befauls by his own faulness." Kol haposul bemumau posul" (Kidusin 70a).

B. S. TALMEY, M.D.

New York.

Galen's Lack of Opportunity.

Galen's anatomy was based almost exclusively on dissection of animals, living or dead. On rare occasions he had the good fortune of a hasty inspection of a human body, some dead highwayman, some victim of the arena, some decomposing body washed up on the river bank. In Alexandria the human skeleton was set up for demonstration, and disused burial grounds yielded up their bones to him, as they did to Vesalius. Like Harvey, Galen had on one occasion the opportunity of watching the movements of the heart in a living boy, who as the result of an accident had his heart exposed to view.

Surgery

Pyogenic Infections.

Pyogenic infections of the kidney are common, and in most instances surgical treatment is indicated. If the infection takes the form of a pyelitis or a pyelonephritis, however, both kidneys are usually involved, and little can be accomplished by surgery. A common type of infection in the kidney occurs from several days to several weeks following attacks such as of tonsillitis and boils. The kidney receives the organism through the blood stream and the involvement occurs in the form of a single abscess or, more often, multiple cortical abscesses. This is indicated by chills, a rise in temperature, and a high leukocyte count, and usually by much local pain and tenderness, especially if the infection extends into the perinephritic space. A large perinephritic abscess sometimes forms, drainage of which is frequently sufficient. If multiple abscesses are found in the cortex with considerable destruction of the kidney substance, a nephrectomy is indicated.

Pyonephrosis is that form of infection in the kidney in which suppuration is combined with obstruction to the outflow of the urine. This condition may result from infection associated with hydronephrosis or with stones in the pelvis or renal tissue. Bilateral pyoncphrosis is frequently encountered in cases of severe cystitis complicated with prostatic enlargement and bladder stone. If the pyonephrosis is unilateral, nephrectomy is often advisable. In some cases in which the infection is not severe or in which there is some contraindication to performing a nephrectomy the kidney pelvis and the kidney tissue may be drained although under ordinary circumstances the establishment of drainage in an infected kidney is not altogether satisfactory. It is often difficult to decide just how to proceed in cases of bilateral pyonephrosis. Many of these cases are associated with stone formation, and the phenolsulphonephthalein output may be low and the blood urea high. It seems to me that the most conservative method, the removal of stones from one kidney at a time, is best. In occasional cases a subcapsular nephrectomy will be required later because of remaining infection and persistent sinuses, but this can be done at a time when the better kidney has resumed a good function. I believe that it is easier for the patient, even in the cases of non-infected bilateral nephrolithiasis, to have one side operated on at a time, the second operation to be performed as soon as complete convalescence has taken place following the first. Stones in the kidney are most often formed in the pelvis or in one of the calices, although they may occur in the kidney tissue. Calcareous formations in the kidney are frequently multiple. They are ordinarily determined by x-ray examination, but even when the x-ray shows only a single shadow the possibility of a number of stones must be considered. Judd is convinced that the reported frequency with which kidney stone is found following operation is largely due to the fact that small stones are overlooked at the time of the operation. In operating it is always advisable to deliver the kidney from the wound in order to get good exposure. When it is possible the stone should be removed through an opening in the pelvis, although an incision into the cortex is better handled now than formerly. It is always wise to make an opening in the pelvis large enough to introduce a finger to explore the calices. This is the best method by which to find stones. It is surprising how large a stone in the kidney may escape notice if the pelvis is not opened and examined from the inside. It has been considered indiscreet to suture these openings in the pelvis or ureter but I believe that this can be done safely with fine, plain, quickly-absorbable catgut; certainly the suture adds greatly to the convalescence as in many cases no urine will drain at any time. The contraindication to closing the kidney pelvis or ureter is the severe infection which may exist.—(*Minn. Med.*, May, 1920.)

Operation and Recovery in Spontaneous Pneumothorax Following Artificial Pneumothorax.

A patient with acute tuberculous broncho-pneumonia was treated by artificial pneumothorax. Thirty-four days after the first introduction of nitrogen gas and following a coughing fit, spontaneous pneumothorax developed. At first partial; within twelve days the spontaneous pneumothorax had become complete, and purulent fluid developed in the chest. The patient became very septic and gravely ill and on the eighteenth day of the spontaneous pneumothorax a rib resection was done under local anesthesia. C. H. Cooke, of Asheville, who communicates this case report, notes that, after surgical operation, the patient's relief was spectacular and that his fever disappeared within a day or two and has remained normal since. The author discusses the probable causes of spontaneous pneumothorax following artificial pneumothorax, but comes to no conclusion regarding its etiology.—(*Amer. Rev. Tuberc., Vol. III, No.* 12.)

Diagnosis and Treatment

The Fate of Influenza Bacilli Introduced Into the Upper Air Passages.

Arthur L. Bloomfield has previously reported observations on the fate of certain bacteria after their introduction into various parts of the upper air passages. This work represented a portion of a systematic study of one phase of infection, namely, the period from the arrival of the organism at the mouth or nose until it is eliminated or until disease is produced. *Sarcina lutea, B. coli,* and *Staph. albus* were studied. It was found that these bacteria were rapidly disposed of; *Sarcina* was promptly destroyed by the saliva, and *B. coli* and *Staph. albus* were washed away by mechanical processes without showing any tendency to colonize. The present report deals with a similar study of the hemoglobinophilic bacteria (*B. influenzæ*). No attempt was made to produce disease, and our purpose was simply to study the fate of the organisms and the method of their disposal.

Several records of inoculations of human beings with *B. influenzæ* are found in the recent literature. These experiments were all made on the hypothesis that the organisms used might be the cause of epidemic influenza and in the attempt to demonstrate this fact by the production of disease, Rosenau introduced strains of influenza bacilli freshly isolated from cases of epidemic influenza into the throats of volunteers without producing any local or general disease. Sellards and Sturm, in the course of a study of hemophilic bacilli isolated from cases of measles, sprayed a saline emulsion of five strains upon the mucous membranes of the eye, nose and throat of four volunteers. Cultures made at three-day intervals for a period of two weeks were uniformly negative, and no local or general symptoms were produced. Sellards reports no observations made during the first three days after inoculation. Wahl, White and Lydall found that the application to the mucous membrane of the nares and naso-pharynx of a saline emulsion of strains from cases of epidemic influenza failed to produce any abnormal symptoms in five healthy men. These workers were unable to recover *B. influenzæ* from the nose after 48 hours except in one case, but found the organisms present in the naso-pharynx for two weeks or longer. In some cases the bacteria disappeared after a few days to return later. In summary, then, the above experiments, while indicating the general trend of events, give no detailed information about the immediate and exact fate of the influenza bacillus.

The general result of Bloomfield's experiments seems to indicate two facts: First, that several strains belonging to the group of so-called influenza bacilli swabbed in large amounts on the normal mucous membranes of the upper air passages failed to colonize and disappeared in about a day; and secondly, that in no case did they produce any demonstrable local lesion or general reaction.

In five instances influenza bacilli were recovered at periods later than 24 hours after inoculation. It seemed of importance to determine whether these strains were identical with those introduced or whether the strain introduced had disappeared and another had supplanted it. Biological differential methods worked out by Dr. Rivers were applied by him to the study of these cultures. In every case it was possible to show that the strain introduced had been replaced by organisms possessing different characteristics. It seems desirable to bring these findings into relation with the known facts about the presence of influenza bacilli in the throats of healthy people. Winchell and Stillman review the recent literature on this subject and report careful studies of their own on a series of individuals over a period of eight months. It seems quite certain that hemophilic bacilli may be found in from 40 to 80 per cent. of various groups of healthy people. The exact seat of bacterial multiplication in the pharynx and the length of time over which any given strain persists are however unknown. Our experiments suggest that the free surfaces of the normal mucous membranes present a relatively unfavorable environment for these bacilli to colonize upon. It may be that their source in certain cases is a focus, such as a chronic sinusitis, bronchitis, or bronchiectasis, or an acute infection of the respiratory tract either in the same or in another individual from which they are discharged into the open pharyngeal cavity. It should be emphasized that all studies on the persistence of influenza bacilli in the throat are of uncertain significance in the absence of proof that the strains recovered from the same individual at various times are identical. The final solution of this question must await the development of complete and accurate methods of differentiating the various strains of hemophilic bacilli.

Inasmuch as the organisms employed in our experiments had been grown on artificial media for several generations the objection may be raised that their failure to colonize was due to alteration in their virulence by growth outside the body. This objection cannot be answered and the experiments are presented with this in mind.

As in the case of the organisms previously studied an attempt was made to analyze the various factors which might be responsible for the disposal of *B. influenzæ*.

1. *The Antagonistic Action of Other Bacteria in the Mouth and Throat.*—No direct experimental method was available for determining to what extent the growth and multiplication of *B. influenzæ* in the throat is prevented by bacteria already present. It is known that *B. influenzæ* grows well on artificial media in symbiosis with many other bacteria under proper quantitative relations. It may, however, be rapidly overgrown by an excess of other bacteria which in smaller numbers would favor its growth. In the case of nasal inoculations other bacteria can hardly play an important part since the nasal mucosa is practically free of organisms.

2. *The Effect of the Mouth Secretions.*—An attempt was made to reproduce mouth conditions by testing the effect of saliva on influenza bacilli in the test tube. Fresh saliva was centrifuged at high speed for a few minutes to remove gross particles. Small amounts of the resulting clear fluid were placed in test tubes and heavily inoculated with *B. influenzæ*. The entire growth from an agar slant was suspended in 0.5 c.c. of saliva, and control tubes of plain broth were similarly inoculated. Cultures were made at various intervals on oleate hemoglobin agar plates. Three salivas covering the normal range of reaction (pH 6.4 to pH 7.3), and three strains of influenza bacilli were employed.

This experiment shows the following points. Influenza bacilli suspended in plain meat infusion broth were viable at the end of 24 hours. From saliva inoculated with the same amount of culture living influenza bacilli were recovered after two hours, but not after 24 hours. The proportion of mouth bacteria in the saliva to the inoculated influenza bacilli was about 1 to 10,000 at the beginning of the experiment. At the end of 24 hours there was only a slight increase in the number of mouth bacterial, whereas no influenza bacilli grew. The experiment seems therefore to indicate that while saliva exercises no immediate destructive effect on *B. influenzæ*, it is an unfavorable medium for the growth of these bacteria and that they do not remain viable in this medium for as long as 24 hours. This result was constant with salivas of different pH.

The probable explanation, therefore, of the rapid disappearance of *B. influenzæ* when introduced into the normal upper air passages involves both the action of a medium unfavorable for the growth of these organisms, together with the mechanical flushing processes constantly at work in these regions.

The question naturally arises in this connection as to what makes possible the tremendous growth of influenza bacilli in disease conditions, such as acute sinusitis pharyngitis, laryngitis, pneumonia, measles, influenza, etc. A possible explanation which still lacks final proof is that these acute processes may alter the environment in such a way that the organisms take hold and grow rapidly at the seat of disease.

SUMMARY.

1. Three strains of influenza bacilli introduced in large amounts into the normal upper air passages disappeared very rapidly—within from one to two days. In no case was a carrier state produced.

2. In no case did any local or general pathological process result from such inoculation.

3. In five instances influenza bacilli isolated later than 24 hours after inoculation were shown to be different strains from those introduced.

4. Influenza bacilli were no longer viable after being suspended in saliva or 24 hours at 37° C.

5. The rapid disappearance of influenza bacilli from the upper air passages is probably due to the combination of an unfavorable environment with the mechanical flushing processes at work in these regions.

6. The question of the persistence of influenza bacilli in normal throats cannot be finally settled until we possess accurate methods for differentiating various strains of hemophilic bacteria.—(*Johns Hopkins Hosp. Bull.*, March, 1920.)

The Lange Colloidal Gold Reaction.

In 1912 Lange first presented the colloidal gold reaction. Since then the test has been applied by an increasingly large number of laboratory investigators until at the present time it has become a routine part of spinal fluid examination in any well regulated clinical laboratory. However, even after these eight years of trial there still remain points of discussion both regarding the technical application of the test and the clinical interpretation of the results of the test. Warwick and Nixon (*Arch. Int. Med.*, Feb., 1920) present a complete study of the reaction and a review of the literature bearing on it. Their work represents the results of an analysis of 800 spinal fluids from 408 patients and a review of some fifty-eight articles in the medical literature. Like previous investi-

gators, Warwick and Nixon lay great stress on the preparation of a satisfactory solution, and say that once a satisfactory solution is obtained it appears to be very stable and, if kept corked in a dark cupboard, will remain satisfactory for months.

A positive reaction, if present at all, begins to appear immediately and is complete in from eight to twelve hours. All syphilitic curves appear the same at first, with the typical paretic curve developing later. These curves are complete only after twelve hours. On the other hand, the test showing no beginning color changes at the end of one-half hour may as well be discarded, as none will appear later. They use the usual methods of charting their reaction.

Clinical interpretation of their results was based on the grouping of cases under seven divisions: (1) *dementia paralytica*, (2) *tabes dorsalis*, (3) cerebrospinal syphilis, (4) multiple sclerosis, (5) cord and brain tumors, (6) meningitis, and (7) miscellaneous group. In *dementia paralytica* the typical curve was obtained in 94.5 per cent. of cases, which was higher than the globulin tests, the cell count, or the cerebrospinal fluid Wassermann. In their series only one non-syphilitic case, other than multiple sclerosis, gave a typical paretic curve and that was a case of brain abscess subsequently verified by operation. "Of the spinal fluid reactions in *tabes dorsalis*, the colloidal gold is definitely the most valuable," being positive in 74 per cent. of the cases as against 53 per cent. Wassermann, 46 per cent. cell count and 44 per cent. globulin. In nine instances it was positive when the other tests were negative. In several patients given provocative treatment the colloidal gold reactions were found to be the first to become positive. In cerebrospinal syphilis there is an even greater disproportion of colloidal gold tests over the other cerebrospinal fluid tests. In multiple sclerosis the test simulates in its results that found in paresis, but in the experiments of the authors the curve was more frequently in the second zone. In their brain and spinal cord tumors they believe that a curve in the third zone, especially unaccompanied by meningitic symptoms, is of diagnostic value as indicating meningeal irritation, as shown in tumors of the brain or spinal cord; and of their fourteen cases verified by operation or necropsy, such a curve was present in eight cases. This was of special value when found in these conditions accompanied by negative or faintly positive globulin tests and a low cell count, because meningitis, which has a similar Lange curve, is accompanied by a markedly positive globulin test and a high cell count.

In treated cases they found that the spinal fluids gave little or no indication of change of reaction, while the patient showed marked clinical evidence of improvement. This justifies the assumption that the colloidal gold curve, while of very definite value in initial diagnosis, is very often practically useless in treated cases, either for diagnosis or prognosis, and has been found not to parallel clinical symptoms. One patient who was receiving intensive treatment gave practically the same colloidal gold curve for three years.

The summary which the authors make of their rather elaborate study includes the following:

The colloidal gold test is the most delicate of the routine spinal fluid reactions.

It does not replace any other test, but on the other hand is of independent value and is of special value in early diagnosis of neurosyphilis.

The various curves are not specific.

Patients with no involvement of the central nervous system or who are non-syphilitic give no colloidal gold curve.

Clear cut clinical cases of *tabes dorsalis* may show all the spinal fluid reactions negative both before and after treatment.

Other conclusions have already been discussed in the body of this review.

Ellis Kellert (*Am. Jour. Med. Sci.*, Feb., 1920) gives the experience of the Bender Hygienic Laboratory in Albany, New York, for the past four years, and it is the chief object of this paper to record the few instances of false reaction. In their negative tests embracing seventy-five fluids from a variety of conditions there were three which gave positive Wassermann reactions and two from patients whose blood yielded positive Wassermann reactions. In his syphilitic cases fairly constant reactions were obtained, although he claims that in 22 per cent. of the fluids the curves could not be interpreted, being either slight or irregularly exaggerated. He believes that the method is more sensitive than the Wassermann test, but that there is much greater possibility of error. In their tuberculous fluids, forty in which the tentative clinical diagnosis of tuberculous meningitis was made gave positive colloidal gold curves. Subsequently, seven of these were excluded as non-tuberculous. Twenty-seven cases of acute meningitis were examined and 74 per cent. gave curves suggesting acute meningitis. On the whole, they found the reaction confirmatory of the clinical diagnosis in approximately 80 per cent. of the cases. It apparently is most valuable in cerebrospinal syphilis.

Like Warwick and Nixon, he believes the colloidal gold reaction is valuable as an additional or confirmatory test; that its greatest value is in the syphilitic diseases of the central nervous system; and that it may serve to differentiate between tuberculous and other forms of meningitis. He emphasizes that cerebrospinal fluid contaminated with blood in small quantity frequently gives luetic reactions and that positive results unconfirmed by other tests are of only slight value. Unlike Warwick and Nixon, he believes that the Wassermann reaction and the cytological examination of the spinal fluid are of greater value than the colloidal gold test.—(*Mod. Med.*, April, 1920.)

Recovery from Addison's Disease.

Dr. Raymond Giraudeau (*Thèses de Paris*, 1919-20, No. 31) devotes his inaugural thesis to the description of a case of Addison's disease, which ended in recovery, death occurring 11 years later from cancer of the stomach, when the autopsy confirmed the original diagnosis. The patient was a man, aged 39, the subject of chronic alcoholism, who on admission to hospital in November, 1901, presented well-marked asthenia, pigmentation of the skin, and buccal mucous membrane, diarrhea with abdominal pain, and a feeble pulse. On January 4, 1902, he was given an injection of suprarenal extract, and the injections were continued for 12 days. Improvement took place in the general condition, and there was a marked increase in weight. The injections were resumed on January 27, when the abdominal pain and diarrhea were very violent. On February 1 the pigmentation had considerably diminished, and during the next two months disappeared from the skin and from the palate. The general condition of the patient had meanwhile improved so much that he was discharged in the summer of 1902.

Except on an occasion when he was interned for an attack of alcoholism in June, 1904, he was lost sight of till February, 1913, when he was admitted to the asylum for another attack. Death took place on March 13. Apart from carcinoma of the pylorus with metastases in the liver, the only lesion found post mortem was some scar tissue in the right suprarenal, indicating the occurrence of inflammation many years previously. The nature of the lesion could not be determined. There was no evidence of tuberculosis or syphilis in the other organs. Dr. Giraudeau comes to the conclusion that in cases in which generalized and transient suprarenal incompetence is the result of a localized inflammatory lesion treatment may be effective, whereas it is of no avail in caseous tuberculosis of the suprarenals.—(*Lancet*, April 24, 1920.)

Immunization Against Diphtheria by Toxin-Antitoxin Controlled by the Schick Test.

The inmates of two institutions in New Jersey have been Schick tested for the fifth time for immunity to diphtheria, after one active immunization with toxin-antitoxin. The children were found to have remained immune from four to four and a half years. This is the longest period over which such tests have been made, so far as is known. The Leake and Watts Home, in New York, was also tested and the few children remaining in the home, since the first test four years ago, were found to be still immune.

The 4,500 inmates of the State Insane Asylum at Kings Park have been Schick tested for immunity to diphtheria, and all patients showing susceptibility immunized by toxin-antitoxin.

The children at the Colored Orphan Asylum at Riverdale-on-the-Hudson, who had previously received toxin-antitoxin, have been retested by the Schick test. The result shows that 104, out of the 111 children injected, have developed active immunity to diphtheria.

On March 8, last, 1,037 children in the Hebrew Orphan Asylum were Schick tested. Results show that not more than sixty-seven, or six and one-half per cent., were susceptible. These latter were immunized with injections of toxin-antitoxin.

The above work was done by the Department's Division of Institutional Inspection, in conjunction with the Bureau of Laboratories.—(*Bull. N. Y. City Dept. Health*, April 24, 1920.)

Tuberculosis Infection of Guinea Pigs by Inhalation.

J. B. Rogers, of the Cincinnati Tuberculosis Sanatorium, reports further experiments on the production of pulmonary tuberculosis in guinea pigs by the inhalation of tuberculosis material. In all the experiments the guinea pigs were wrapped so that only their nostrils were exposed to the spraying. All animals given a single spraying of five minutes with a suspension of tuberculous sputum developed pulmonary tuberculosis. Particles of tuberculosis sputum containing tubercle bacilli placed on the normal nasal mucous membrane brought about tuberculous changes in the cervical lymphatic glands, with involvement of the lungs, liver and spleen later.—(*Amer. Rev. Tubere., Vol. III, No. 12.*)

The Physician's Library

American Illustrated Medical Dictionary (Dorland). 10th Ed. Edited by W. A. Newman Dorland, M.D. 1201 pages with 331 illustrations, 119 in colors. Containing over 2,000 new terms. Philadelphia and London: W. B. Saunder Company, 1920.

Although only a year has elapsed since the appearance of the ninth edition, the appearance in medical literature of more than 2,000 new trems made a new edition necessary.

This dictionary is the best in the English language, and it is difficult to se how a physician can comfortably follow his profession without a copy in his library.

The Exact Diagnosis of Latent Cancer. By O. C. Gruner, M.D. 79 pages. Philadelphia: P. Blakiston's Son & Co., 1919.

The author asserts the blood practically reveals the diagnosis of cancer. He says that blood studies show the presence of cancer, and even the kind of cancer, and believes that a sufficiently careful study of the blood will enable us to foretell cancerous change as well as "*any* infection and the probable story of its subsequent course in the given patient."

His theory is interesting and we shall await further work along this line with interest.

Our Nervous Friends. By Royal S. Carroll, M.D. 258 pages. New York: MacMillan Co., 1919.

The author adopts the clever method of making stories out of a scientific book, the better to hold the attention of the reader in illustrating the mastery of nervousness. The stories are cleverly told and each one illustrates a subject, such as discord with self, emotional tyranny, the therapy of work the potency of diet, the wreckage of the pampered body, etc.

The author has done his work well.

Principles and Practice of Physical Diagnosis. By John C. DaCosta, Jr., M.D. Ex-Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Fourth Edition. 602 pages with 225 original illustrations. Philadelphia and London: W. B. Saunders Company, 1919.

The war plays a part in the latest edition of this helpful book. There is a discussion of such subjects as aviator's heart, gas edema and gas pneumonia, which savor of the late word's contest at arms. The author takes advantage of the war to add all the new diseases and methods of physical diagnosis which were evolved during the past five years, and it adds materially to the value of an already excellent treatise on a most important subject.

A Laboratory Manual of Physiological Chemistry. By Elbert W. Rockwood, M.D., of the University of Iowa. 4th ed. 316 pages. Philadelphia: F. A. Davis Co., 1919.

Students will find this manual up to date and easily understandable. Many new tests have been added since the last edition, making it complete. Differentiation has been made between clinical and research methods, to the advantage of the student.

Practical Organotherapy. By Henry R. Harrower, M.D. 268 pages. Glendale, Cal.: Hanover Laboratory, 1920.

Organotherapy has not yet come into its own, but recognition of its value in therapy is slowly but certainly assured. This little book demonstrates what it is and what we may expect from an application of its principles. Not many years ago endocrinology was laughed at. Today men see in it the way to success in therapy. Dr. Hanover is one of the early workers in the American field and with his accustomed enthusiasm he has gone into the subject deeply. This book sets forth in detail just how the internal secretions can be utilized in general medicine and it fills a most useful purpose in so doing.

Diseases of the Chest and the Principles of Physical Diagnosis. By George W. Norris, M. D., and Henry R. M. Landis, M. D., of the University of Pennsylvania, with chapter on Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph. D., M. D. Second Edition. 844 pages, with 433 illustrations. Philadelphia and London: W. B. Saunders Company, 1920.

It would be difficult indeed to find a more comprehensive book on the physical diagnosis of the lungs and heart in disease and health than this splendid volume. The four parts are devoted to the examination of the lungs and of the circulatory system, the diseases of the bronchi, lungs, pleura and diaphragm, and of the pericardium, heart and aorta. Nothing has been omitted to make the data under these headings absolutely complete and the physician is given everything about the organs and diseases described that he will ever desire to know. A wealth of illustrations, from life and frozen sections, present to the eye the belief that one is almost regarding the actual individual or specimen. Too great credit cannot be given the authors for this monumental work.

The Itinerary of a Breakfast. By J. H. Kellogg, M.D. 210 pp. New York: Funk & Wagnalls Company, 1919.

The medical director of Battle Creek Sanitarium discusses clearly and sensibly the disposal of the waste products remaining in the body after all the nutriment has been extracted. He shows how neglect and carelessness in attending properly to their prompt elimination give rise to many of our most common diseases, a large part of which are preventable by the exercise of a little common sense and the cultivation of right habits. He gives much valuable information as to the worth of different kinds of foods and shows how one may keep in the best of physical condition by the judicious regulation of the diet and without any need of resorting to drugs.

Orthopedic and Reconstruction Surgery, Industrial and Civilian. By Fred H. Albee, M.D., Director of Department of Orthopedic Surgery at the New York Post-Graduate Medical School. 1,138 pages, with 804 illustrations. Philadelphia and London: W. B. Saunders Company, 1919.

Those familiar with the marvellous work recently performed by Col. Albee at the army hospital in Colonia, N. J., can only think of him as a worker of miracles in reconstructing poor, mangled soldiers and in giving them useful jaws, arms and hands. But in reality Albee is a great orthopedist as well and his book will ever stand out as the kind of a work we might expect from this kind of a man.

Naturally he has covered the whole gamut of orthopedics from alpha to omega, and while we are pleased with his handling of deformities of the spine and generalized and localized distortions, etc., etc., we must admit to being much more interested in his methods of reconstruction. This helps to bring out the wonderful mechanical genius of the man. His bone grafting is productive of results little short of miraculous and medical men must doff their hats to this master.

The work, voluminous and weighty, leaves nothing to be desired and the scheme of placing the references at the end of each chapter is to be commended. The photographs are of unusual clearness.

Systematic Development of X-Ray Plates and Films. By Lehman Wendell, D.D.S. University of Minnesota. 78 pages. St. Louis: C. V. Mosby Co., 1919.

This is a useful little book for x-ray technicians and contains many helpful formulae and has an unusual number of good pictures.

Post Mortem Manual. By Charles R. Box, M.D., of St. Thomas Hospital, London. Second edition; 372 pages; illustrated. London: J. & A. Churchill, 7 Great Marlborough St., 1919.

This is a very careful exposition of morbid anatomy and post mortem technic. The author has gone into his work with the most careful detail, and as a result has produced a manual which will be of inestimable value to coroners, physicians and medical examiners.

The only criticism that can be made is that the pictures, instead of being half-tones, to which the American physician is accustomed, are wood-cuts and they do not, therefore, bring out the detail that we might wish. This fault is more than counterbalanced, however, by the excellence of the text and the book is commended to all those who may be interested.

Venereal Diseases. By Hugh Wansey Bayly, M.C., of St. George's Hospital, London. 152 pages. London: J. & A. Churchill, 7 Great Marlborough St., 1920.

The high standing of the author, who during the war was in charge of the Venereal Blocks at Rochester Row and Grove Military Hospitals, so frequently visited by American medical officers, is sufficient to interest all those who do any venereal work.

The author, after devoting some time to prevention, discusses at length syphilis, gonorrhea, and non-specific lesions, and then goes into the organization and administration of a venereal clinic. His work is characterized by thoroughness and good judgment. He advocates the use of the neoarsphenamine, in preference to the older product in the treatment of syphilis, and he gives it in the very small solution of 1 c.c. distilled water to each decigram of the product. We believe this dilution is too concentrated, but, on the whole, his treatment follows the general accepted plan utilized in this country. The book is one which venerealogists will find of interest.